Students' Edition

HOME NURSING

BY

C. F. WIGHTMAN, F.R.C.S., Eng.

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HOME NURSING MANUAL

WITH CHAPTERS ON PERSONAL HYGIENE AND CARE OF INFANTS

BY

C. F. WIGHTMAN, F.R.C.S., ENGLAND

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PREFACE

MANY manuals on First Aid have been written and published, but only a very few Home Nursing books; the Author, therefore, makes no apology for publishing this manual.

The Syllabuses of all examining bodies are more than covered; at the *end* of each chapter are a number of questions for students, and at the *beginning* are a few notes to Lecturers.

The subject is divided into eleven short chapters, and for the usual course of five lectures they should be taken as follows:

Lecture I . .	Chapters I and II
Lecture II . .	Chapters III and IV
Lecture III . .	Chapter V
Lecture IV . .	Chapters VI and VII
Lecture V . .	Chapters VIII and IX

Students are recommended to read two chapters a week, and to carry out the practical work mentioned at the end of each.

I am indebted to Sister Harlow for some valuable assistance.

Suggestions for improving future editions will be thankfully received.

C. F. WIGHTMAN.

ROYSTON, HERTS.

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HOME NURSING

CHAPTER I

Note to lecturers.—Emphasis should be made on adapting methods suitable to the home surroundings and on utilising materials at hand. The best possible under existing circumstances should be the aim, as the absolute best can seldom be obtained.

THE NURSE

Some people naturally have the qualities which go to make a good nurse more highly developed than others; but as instruction in *home nursing* is not intended to make the students *trained* nurses, but only to fit them to undertake that amount of nursing which they may be called upon to perform in their own homes, it is unnecessary to go deeply into the subject of the qualities which are so essential in a hospital-trained nurse. It is, however, impossible for any one who has not had a certain amount of instruction in the principles and practice of nursing to avoid making mistakes, and mistakes which are often most serious. It is this instruction that *home-nursing* lectures have to supply.

The two most important qualifications of a good nurse are *strict obedience* and *absolute loyalty* to the medical attendant. The interests of the doctor and

nurse are identical, and the one object to be kept in sight is the recovery of the patient as speedily as possible.

A good nurse is scrupulously neat, modest, bright, and pleasant, but at the same time businesslike. She is quiet, and speaks in a low, distinct voice, which, however, does not approach the character of whispering. She must possess the average amount of intelligence and a great deal more than the average amount of tact. She must be attentive to the patient without being fussy, firm without being harsh, cheerful even under the most trying circumstances, and must be the incarnation of truthfulness, hiding nothing from the doctor and adding nothing to her report.

She should wear a neat, inconspicuous dress of some washing material. A tendency to gossiping totally unfits a woman for the duties of a nurse. A nurse must never take the friends into her confidence about the patient, and should not express her own opinions. She must be very observant, have a good memory and a complete mastery over her tongue and temper. She must be patient and sympathetic, and must thoroughly understand domestic duties so that she may know that they are properly done. She must never deceive the patient, remembering that confidence is hard to gain, but easy to lose.

THE NURSE'S HEALTH

A nurse must look after her own health, as she cannot do the best for a patient if she be ailing. Her duties

are trying, and the anxiety experienced by a conscientious nurse in a critical case taxes her bodily and mental strength to the utmost. Abundance of fresh air obtained by a daily walk and by keeping the sick-room and her own bedroom properly ventilated; an easy conscience, knowing she has done her duty to the very best of her ability; and a cheerful disposition, will do much to keep her in good health. She must insist that she shall have, as far as it is possible, regular hours for undisturbed sleep, for her daily outdoor exercise, and for her meals, which should never be taken in the sick-room. A few minutes spent out-of-doors morning and evening, in addition to the daily walk, is of advantage, if it can be obtained.

A nurse should not neglect her daily bath, and a regular action of the bowels should be maintained. The throat should be gargled daily with some mild antiseptic, such as a saturated solution of boracic acid. The teeth should be brushed at least twice daily. The hands need careful attention, especially when they have to be constantly in antiseptic lotions as when nursing surgical cases. They should be carefully dried after each wetting, and cracking of the skin should be guarded against. Hazelene Cream applied at nights tends to keep the skin free from cracks. The nails should be kept carefully pared, and a nail brush *only* should be used for keeping them clean. Cuts should be protected with *Isinglass Plaster*. A nurse should not touch stimulants unless ordered to do so by the doctor.

THE NURSE'S DRESS

The dress should be made of some washable material such as holland or cotton. It should be quite plain and should reach to within an inch or two of the ground. A white apron, with a pocket in front, should also be worn. Linen cuffs should be worn; these are to be removed and the sleeves turned up when dressing surgical cases and when washing the patient. Creaking boots and shoes should be avoided, and also high heels.

COMING ON AND GOING OFF DUTY

The nurse coming on duty must always receive the report from the nurse going off. Any special instructions left by the doctor should be given over to the oncoming nurse. The nurse coming on should see that everything she may require is ready, and, if the duty is for the night, she should see that the patient's food is ready on a table outside the room, that the coal-box is full, and that matches are at hand. A small screen should be provided to keep the light of the nurse's lamp from the patient. She should have a book to read or some sewing to do.

A pair of housemaid's gloves should be at hand so that coal may be put on the fire quietly and without dirtying the hands. If ice is being used she should see that a supply has been brought up, and that it is suspended on a piece of flannel over a mug. A large needle should be ready for breaking off small pieces of the ice. The nurse will probably require a shawl

even in summer, as the early morning hours are generally chilly. She should have had a good meal before coming on, and some light refreshment should be ready outside the bedroom for her to take during the night.

THE DOCTOR'S VISIT

Everything should be in good order some little time before the doctor is expected to arrive. By making the necessary preparations *some time before* the doctor comes, the patient will have recovered from the effects of the morning toilet, etc. The nurse on duty should have a full written report ready for the doctor's inspection, and the temperature chart must be ready written up. The report should be as short as is consistent with a full statement of *facts*. It must be accurate and not indefinite. The *exact* quantity of food taken, the *exact* amount of sleep, etc., should be stated with the time.

The following, as far as is applicable to the case being nursed, should also be ready: viz. dressings, lotions, a specimen of the excreta, urine, and expectoration, scissors, safety-pins, hot and cold water, nail brush, soap, clean towels, a spatula (*i.e.* tongue depressor) or a tablespoon as a substitute, pen, ink, and paper. The nurse should not speak to the doctor whilst he is examining the patient, and *never*, in the presence of the patient, should she ask him what he thinks of the progress of the case. It is generally advisable for the nurse to leave the room for a few minutes during the

doctor's visit so that the patient may feel free to speak to the doctor. When the doctor leaves, the nurse should follow him *downstairs*, so that he may give his instructions out of hearing of the patient, and so that she may ask for any further information she may require.

It is important that these instructions, etc., are not given just outside the bedroom door, as there is nothing more irritating to a patient than to hear talking going on just outside the room. The nurse must make sure that she thoroughly understands the doctor's orders, and must see that special and important ones are at once written down.

The following is a specimen of a portion of a nurse's report :

NURSE'S REPORT

NAME : *S. Parish.* DISEASE : *Pneumonia.*

Date and Time.	Sleep.	Medicines.	Action of Bowels.	Nourishment.	Doctor's Orders and Nurse's Remarks.
Mar. 3, 1912	10 *a.m. to* 11.30 *a.m.*	10 *a.m.*	9 *a.m.*	8 *a.m., Bread and milk,* ½ *pint*	11.40 *a.m., Doctor's visit*
9 *a.m. to* 9 *p.m.*	2.30 *p.m. to* 4 *p.m.*	2 *p.m.* 6 *p.m.*	*B.o.j.*	11 *a.m., Broth,* 6 oz. 1 *p.m., Egg beaten up in milk,* 8 oz.	12.30 *p.m., Complained of severe pain in left side, relieved by hot fomentations*

VISITORS

The nurse should get directions from the doctor as to visits from friends, and the orders received must be strictly obeyed. Visits must be so arranged as not to interfere with the patient's rest and meals. The *patient* is the first consideration, and the claims of friendship and even the claims of relatives must be subordinate. Visitors should sit where the patient can see them easily without turning round, and, in infectious cases, they should sit between the bed and the window.

The nurse should not be in the room all the time the visitors are there, but she must carefully note the effect the visit has had on the patient both at the time *and afterwards*. Some patients are benefited and some are depressed by visitors. When the visit is over, the visitor must leave *at once*; there must not be any indecision about taking leave. A nurse will often have to use her tact in getting rid of a tiresome visitor, but, however unpleasant the task, it is her duty to see that the patient is not unduly fatigued.

THE SICK-ROOM

The choice of a room depends, to a great extent, upon two things: first, the accommodation the house affords, and, second, upon the nature of the illness.

As to the first nothing can be said, and as to the second it should be borne in mind that cases of prolonged illness

should be nursed in a room not too far away from the rest of the household, and the same applies to short *slight* cases. Infectious cases, on the other hand, should be nursed in a room that can be isolated from the rest of the house, and the same applies to delirious and noisy cases.

It remains to describe shortly an *ideal* sick-room; for if one knows what this is, it should be possible to *choose the best room available.*

IDEAL ROOM

An ideal room should face south or south-west, so as to make the best use of the declining sun and so that the patient's rest may not be disturbed by the early morning sunlight. It should be lofty, well ventilated, quiet, and *moderately* large. It should have a fireplace with an open register, and sash windows. In infectious cases it should be capable of being isolated from the rest of the house. It is a great advantage to have a second room opening out of the sick-room, and there should be a lavatory on the same floor. The windows and door should fit well and not rattle. With such a room the nurse's labours will be lightened, and there will be little or no difficulty in keeping the room bright and healthy.

PREPARATION OF ROOM

Little, as a rule, can be done in this direction, and the patient is generally nursed in the room he is already

occupying. If time, however, allowed, the room should be thoroughly cleaned. Florence Nightingale once said, "The fear of dirt is the beginning of good nursing." The bed and bedding and every part of the room and all its contents must be kept absolutely clean; not only those parts that can be seen, but also those parts hidden from view. The tops of the doors, picture-rails, etc., should be dusted. If the room has not been used for some time, see that the fireplace will allow of a fire being used. Even in summer this is necessary, as one can never say a fire will not be required at some stage of the illness. Open the windows top and bottom and thoroughly air the room.

FURNISHING THE ROOM

In an ordinary case of illness little need be done in altering the furniture of the room. The old idea of practically emptying the room, removing the carpets, curtains, etc., is wrong. The room should be cheerful and bright and comfortably furnished, and with the usual pictures hanging on the walls. A half-empty room is depressing and militates against a rapid recovery.

In infectious cases the room should, however, have useless furniture removed; the carpets should be taken up. The floors should not, however, be left bare; rugs should be used to deaden sound. They can easily be removed for cleaning and are readily disinfected after the patient's recovery.

A few pictures may be left to add to the brightness of the room.

The following should be found in *all* sick-rooms : viz. a small table by the side of the bed ; a second small table for the use of the nurse ; two chairs, one with a cane bottom and one comfortable one for the nurse ; a coal-box, and a light couch on wheels for use during convalescence. Flowers add to the cheerfulness ; they should not be strongly scented and should be removed at night. They must not be allowed to become stale. The windows should be provided with dark blinds, to exclude the light when necessary. Chintz or lace curtains may be used, as they can be easily disinfected afterwards. Woollen curtains should not be used, as they collect dust and retain smells for a long time. A thermometer for registering the temperature of the room is necessary, and, as we want to know the temperature of that part of the room in which the patient is, and not of some remote corner, the thermometer should be hung on the wall near the head of the bed when the bed is near a wall, as it usually is ; when the bed is some distance from a wall, the thermometer should be hung on the head of the bedstead itself. A bed-table is useful during the convalescent stage. The disadvantage of having much furniture in the room is that it occupies space that is required for air, it entails more work to keep the room clean, and it hampers movement about the room. Two small tables are required *outside* the room ; one for light nourishment and one for medicines, etc.

THE BED AND BEDDING

A simple single iron-framed bedstead is the best. A double bedstead entails unnecessary fatigue for the nurse, and with it, it is more difficult to keep the under sheet smooth. Beds with hanging side-curtains should not be used. A spring mattress, chain-mail bed, or a horse-hair mattress should be employed, and never a feather bed. Valances should be discarded, as they harbour dust and interfere with ventilation. Counterpanes are heavy, do not admit of ventilation, and are not warm. Heavy bedclothes should be avoided, the necessary warmth being obtained by using a quilt. The pillows should be comfortable but not too soft, and should support the neck as well as the head. The best position for the bed is between the window and fireplace or between the door and fireplace ; the head should be about a foot from the wall, and both sides should be free so that the nurse can attend to the patient from either side. In some cases light is trying to a patient, and the bed should be placed with the head towards the window. During convalescence the bed may be moved so that the patient can see out of the window.

DAILY CLEANING OF ROOM

The room should be dusted every day. Once a week the floor should be thoroughly swept, and damp tea-leaves should be used to prevent making a dust.

Windows should be cleaned once a fortnight. The fireplace requires cleaning daily if a fire is being used. To prevent noise when making up the fire, large lumps of coal should be used, and should be placed on the fire by the hands protected with a pair of housemaid's gloves ; or the coal may be brought up in small strong paper bags which can be placed on the fire as required. Logs of wood should not be used in a sick-room. Peat fuel is useful, as it can be put on the fire without noise and lasts a long time.

TEMPERATURE OF ROOM

The temperature should be kept at a *uniform level* as far as possible. The usual temperature is between 55° F. and 60° F. In chest cases it has to be kept rather higher. A nurse must never trust her own sensations, but must *frequently* consult the thermometer. The position of the thermometer has already been described (see p. 18). Lamps and gas must not be used for warming the room.

PRACTICAL WORK

Note to lecturers.—A short description of the roller bandage should be given, with the general rules for its application. For practical work simple spiral and reverse bandages should be applied to the arm and leg and the capelline bandage to the head.

Questions on Chapter I

1. *What is the object of home-nursing lectures?* (p. 9).
2. *What are the two most important qualifications of a good nurse?* (p. 9).
3. *Mention some other qualifications* (p. 10).
4. *What steps should a nurse take in regard to her own health?* (p. 11).
5. *What kind of dress should a nurse wear?* (p. 12).
6. *What are the general rules to be observed when nurses change duty?* (p. 12).
7. *How should ice be kept, and how are pieces broken off?* (p. 12).
8. *Why should preparations for the doctor's visit be made some little time before he is expected to arrive?* (p. 13).
9. *What preparations should be made for the doctor's visit?* (p. 13).
10. *Where does the doctor give his instructions to a nurse?* (p. 14).
11. *What regulations are to be observed as to visitors to a patient?* (p. 15).
12. *Describe an ideal sick-room for* (a) *a long illness,* (b) *for an infectious case, and* (c) *for a delirious case* (p. 16).
13. *If time admits, what preparations should be made in a room that is going to be used for a case of illness?* (p. 17).
14. *What furniture should a sick-room contain?* (p. 18).

15. *What is the best bed for a patient, and what is the best kind of mattress?* (p. 19).
16. *What position should a bed be placed in?* (p. 19).
17. *What daily cleaning is required?* (p. 19).
18. *What temperature should a sick-room be kept at, and where should the thermometer be placed?* (pp. 18-20).
19. *How is a nurse's report drawn up?* (p. 14).
20. *What are a nurse's duties regarding visitors?* (p. 15).

CHAPTER II

Note to lecturers.—Demonstrate the difference in the amount of carbonic acid in the atmosphere and in expired air by blowing air through lime water with (1) a pair of bellows, and (2) by blowing with the mouth through a glass tube in the lime water.

RESPIRATION AND VENTILATION

Blood in circulating through the tissues of the body undergoes certain changes. The blood supplies the tissues with nourishment which it has obtained from the digestive organs, and it also supplies a gas, called *oxygen*, to the tissues, and it takes away certain impurities, amongst which is a poisonous gas called *carbonic acid*. If the blood were allowed to retain this carbonic acid gas, and if it were continually deprived of oxygen, life would soon become extinct. It is therefore necessary for the blood to get rid of the one and to be recharged with the other. The organs which effect this interchange of gases are the lungs. The atmosphere contains nearly 21 per cent. of oxygen, 79 per cent. of an innocuous gas called nitrogen, and a minute trace (0·04 per cent.) of carbonic acid gas. Roughly speaking, then, the atmosphere contains one-fifth part of oxygen and four-fifths parts of nitrogen.

Air is taken in through the nose or mouth (it should be taken in through the *nose*, as in its passage through this organ it is *filtered*, *warmed*, and *moistened*). It

then passes through the upper part of the throat, or *pharynx*, and then through the windpipe, or *trachea*. Behind the breast-bone the trachea divides into two branches, or *bronchi*, one for each lung. The bronchi divide again and again into smaller and smaller tubes, or *bronchioli*, and these finally end in minute bags called *air-cells*. On the walls of these air-cells are very minute blood-vessels, called *capillaries*, and these contain the *impure* blood mentioned above.

Now, the walls of the air-cells and of the capillaries are so thin that gases can pass through them. The lungs contain millions of these air-cells, and if these were all opened out and placed side by side they would cover nearly 100 square yards, so that really we have about 100 square yards of two very thin membranes separating the impure blood on one side from the pure air on the other. By a certain law, known as the "*diffusion of gases*," the poisonous carbonic acid gas passes from the impure blood, in the capillaries, into the air-cells, and the pure oxygen, in the air-cells, passes into the blood in the capillaries and thus the blood is purified.

The pure blood then passes back to the heart and is again circulated round the body and becomes once more impure. It then returns to the right side of the heart and is again driven on through the lungs, where the interchange of gases is repeated. Air in the air-cells is got rid of by *expiration* or the breathing-out of air, and the expired air contains only 16 per cent. of oxygen and about $4\frac{1}{2}$ per cent. of carbonic acid gas

and certain other impurities, and a good deal of moisture; in other words, it has lost about 5 per cent. of its oxygen and has acquired over 4 per cent. of carbonic acid gas and a small *important* percentage of other poisonous compounds.

The lungs are now once more filled with air by means of *inspiration*, and once more the interchange of gases takes place. The two acts of *expiration* and *inspiration* constitute *respiration*, and the function of respiration is the purification of blood. *To enable respiration to carry out this important function it is necessary that the air breathed in should be pure.*

In twenty-four hours about 16 cubic feet of carbonic acid gas are given off by each person. In a sick-room there are many other impurities, such as emanations from the surface of the body, putrefying matter from sores, sputum, excreta, etc., and the impurities caused by the combustion of ordinary gas, lamps, and candles. A single gas-burner, or oil lamp of the same degree of luminosity, fouls as much air as six adults.

It has been estimated that each adult requires 3,000 cubic feet of fresh air an hour. Now, air that is changed more than three times an hour causes discomfort and too great a loss of heat. From these two facts the size of a room to contain a given number of people can be calculated. For example: we know that the air cannot be changed more than three times an hour with safety, and that each person requires 3,000 cubic feet of air in that time; therefore the smallest cubic space that can be used is 1,000 cubic feet—that is, a

room 10 feet long, 10 feet high, and 10 feet wide, or if the room is only 8 feet high and 10 feet wide it must be $12\frac{1}{2}$ feet long. In this calculation it is assumed that the ventilation is perfect, and no allowance is made for fouling of the air by artificial lights and by warming, etc.

We will take one more example. Size of room: 10 feet high, 10 feet wide, and 12 feet long = 1,200 cubic feet. Occupants: one patient, one nurse, and one candle; this is equivalent to three people. Each person gives off 16 cubic feet of carbonic acid gas in twenty-four hours—that is, two-thirds of a foot in an hour. Three people give off $\frac{2}{3} \times 3 = 2$ cubic feet an hour.

Now, 1·5 per cent. of carbonic acid gas produces headache in an ordinary room and 0·2 per cent. in a sick-room. Now, 0·2 per cent. in a room of 1,200 cubic feet equals 2·4 cubic feet; and a patient, the nurse and one candle give off 2 cubic feet an hour. Therefore if the room were unventilated it would be rendered unfit for habitation in just over an hour.

The importance of fresh air cannot be overrated, and especially so in cases of illness where the same room is occupied day and night, and when more oxygen is required to overcome the effects of the illness itself. We have already seen that the air of a sick-room is contaminated by other impurities than those simply of respiration. In certain heart cases less blood is driven through the lungs in a given time, and therefore less blood is purified at each inspiration; it is therefore important that the air breathed should be as pure

as possible and that the chest movements of respiration are not unduly hampered by heavy bedclothes.

VENTILATION

By proper ventilation a *constant* stream of fresh air is secured to replace foul air. It is of little use to open the windows or door *occasionally* when the room feels stuffy and close, for the room should *never* be allowed to get into a state of being stuffy. The air in a bedroom that has been well ventilated during the day will not remain sufficiently fresh throughout the night. It is a marvel that patients recover at all when confined in hot, stuffy rooms, as is so often the case in spite of advice to the contrary. The recovery, however, under these conditions is not so rapid nor so complete as when the surroundings are more favourable. The constant breathing of impure air debilitates the constitution and makes it more prone to succumb to disease. "The most elaborate sanitary appliances and the most carefully constructed scheme of life cannot do as much as the observance of the common rules of health at home."

Fresh air by night as well as by day should be the rule in health, much more should it be the rule in sickness. There is nothing injurious about night-air; it is often the purest in the twenty-four hours.

Great care is usually taken over the food eaten in the three or four meals consumed a day, but little or no trouble is taken about the food for the lungs which are fed some fifteen times a minute.

In ventilation, means must be provided for fresh air to enter and for foul air to get out; in other words, there must be *inlets* and *outlets*.

Outlets.—Three physical factors are made use of in ventilation:

1. *Diffusion of gases.*—When different gases come in contact they tend to mix. In all rooms diffusion of gases is constantly going on through chinks and openings. It even goes on through brickwork.

N.B.—Diffusion may produce bad results when the sanitary arrangements are defective, for sewer gas may diffuse and mix with the ordinary air.

2. *Differences of temperature.*—These cause active movements of the air. Warm light air and gases ascend. Cool and heavier air and gases descend. Air fouled by combustion and by breathing is heavier than ordinary air at the same temperature. When the breath is first expired it is warmer than the ordinary air, and therefore rises, but when it gets cooled it sinks. The aim in ventilation should, therefore, be to get rid of the air from the higher parts of the room *before* it sinks, and thus prevent it being re-breathed.

N.B.—Some people are content to get rid of the fouled expired air, *after* it has cooled and descended, by means of the chimney when a fire is burning, or even when it is not burning; trusting to the wind passing over the chimney-top outside sucking the foul air up. This is the wrong way of making use of the winds.

3. *Winds.*—These are of great value if *properly*

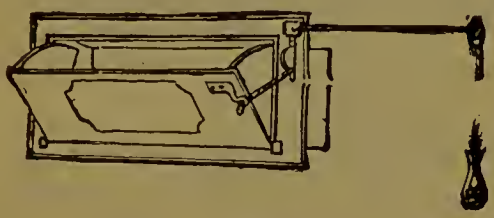
used—that is, by throwing the windows wide open and allowing the winds to flush the room with fresh air. Winds get rid of *organic* impurities which are not affected by diffusion.

N.B.—Many people allow the winds to act simply by sucking the foul air up the chimney. The suction method of using winds is all right when used in artificial ventilation by means of ventilators at the top of a room.

Inlets.—There are several ways of ventilating a room.

A. Special Artificial Means

1. *Sheringham's Valve.*—This is a valved opening let into the wall high up. Several small valves are better than one large one. They *can be* (but should not be) closed by means of a pulley at the side.



SHERINGHAM'S VALVE

2. *Boyle's Valve.*—Let into the chimney. It consists of an iron frame with openings in it; the openings are covered by hinged talc-plates which only open

towards the inside of the chimney. It is apt to be noisy when a strong wind is blowing.

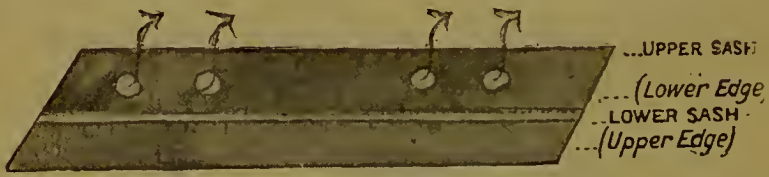
3. There are many others, such as *Tobin's Tubes, Ellison's Inlet,* etc., etc.

B. Ordinary Methods

1. *Trusting to luck* and the bad fittings put in by the builder. A certain amount of diffusion takes place through crevices, etc. This method is used by many people, and is only mentioned to be condemned.

2. *Opening the door only.* When this is done the room is supplied with air that is already more or less fouled in its passage through other parts of the house.

3. *Boring holes* through the lower part of the upper sash.



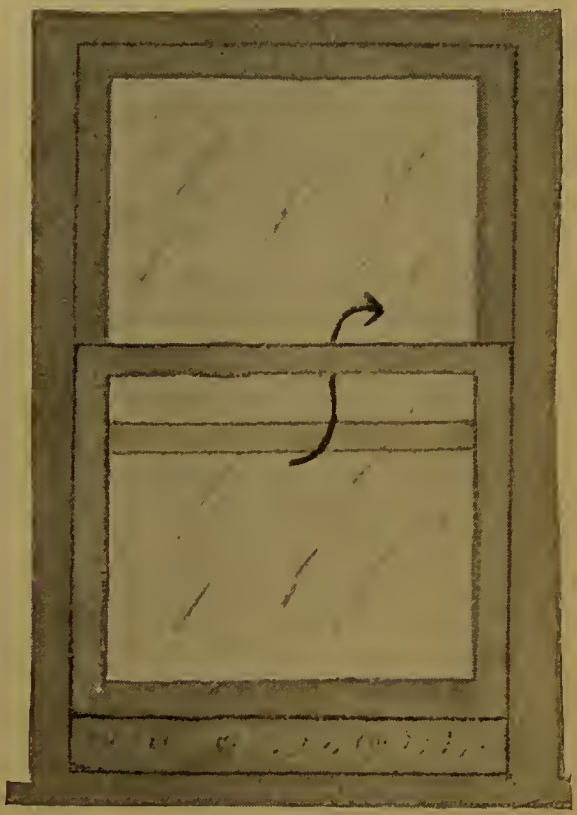
ORDINARY METHOD—BORING HOLES THROUGH LOWER PART OF UPPER SASH

This allows a certain amount of air in, and the air, coming from the outside, is pure. It is not a plan to be strongly recommended, but is better than 2.

4. *Opening the lower sash* about six inches and filling in this opening with a board. The fresh air comes in through the opening that now exists between the two sashes near the middle of the window.

This method is rather better than 3.

5. *Opening the lower ash* and filling up the opening, as in 4, and opening the upper sash and filling that opening with perforated zinc or gauze. This is an improvement on 4.



ORDINARY METHOD—OPENING LOWER SASH

6. *Opening both sashes wide.* This is the right way in the great majority of cases. In certain chest cases and in very cold weather it may not be possible to keep the room at the required temperature if both sashes are thus opened. In these cases either No. 3, 4, or 5 method must be used.

Outlets.—These are better provided high up for the reasons already stated. Opening the top of the window is the best. The chimney always acts as an outlet to some extent, provided it is not blocked up. With a fire burning, the air, heated by the fire, rushes up the chimney,

and sucks the air from the lower part of the room. This lower air is always fouled to some extent, and, when adequate ventilation is not provided, it becomes very foul. Nurses must be careful not to mistake closeness for warmth. A close room feels warm. When a room feels too warm, consult the thermometer, and if this is not too high the room is close and the window should be opened a bit wider. If, on the other hand, the thermometer registers too high a degree of heat, the room is too warm, and the fire should be allowed to die down a little.

Draughts.—If the ventilation is properly carried out there should be no draughts. When a room gets very warm the heated air escapes rapidly through the chimney and other openings, and if the window is only opened an inch or two the fresh air, which must take the place of the escaping foul air, has to come in rapidly. This rapid inrush of fresh air causes a draught. If the window is opened much wider, the fresh air, coming in in increased volume, moves more slowly and so does not produce a draught. *Screens* can always be arranged so as to prevent draughts reaching the patient. In the absence of proper screens, clothes-horses with blankets arranged over them make excellent substitutes.

PRACTICAL WORK

Finger and Hand-bandages, Thumb Spica, Elbow and Knee-bandages.

Questions on Chapter II

1. *What is the object of respiration?* (p. 25).
2. *What is the composition of the air roughly?* (p. 23).
3. *Why should people breathe through the nose?* (p. 23).
4. *What is the difference between inspired and expired air?* (p. 25).
5. *How much carbonic acid gas is given off by an adult in twenty-four hours?* (p. 25).
6. *Why is the air of a sick-room more quickly contaminated than that of an ordinary room?* (p. 25).
7. *How many cubic feet of air does an adult require in an hour?* (p. 25).
8. *How many times an hour can the air of a room be changed with safety?* (p. 25).
9. *Why is fresh air so important in case of sickness?* (p. 26).
10. *What do you mean by ventilation?* (p. 27).
11. *Is night air injurious?* (p. 27).
12. *What are the three chief factors in ventilation?* (p. 27).
13. *What are the methods of ventilating a sick-room?* (p. 29).
14. *Which is the best method?* (p. 31).
15. *How do you prevent draughts?* (p. 32).
16. *What do you mean by "diffusion of gases"?* (p. 28).

CHAPTER III

Note to lecturers.—Whenever possible a trained nurse should demonstrate the making of beds and the changing of sheets.

CLEANLINESS OF PATIENTS

DURING illness waste products are more quickly formed than in health, it is therefore very important to keep patients clean so that the skin may be free to act and thus get rid of the poisonous products formed. The vital powers of a patient are low, it is thus necessary that the washing should be done at the time the patient is at his best ; this is usually about half an hour after breakfast. The face, neck, and hands should be washed every morning, and the hands and face sponged after every meal. At least twice a week the whole body should be washed. With patients who are very ill this should be done piecemeal, either at different times on the same day or one part one day and another part another day. Get everything ready before commencing, and place the basin of warm water on a chair by the side of the bed. Protect the bed with warm, dry bath-towels or spare blankets ; turn up the night-dress, keeping the patient covered by the top blanket. Much care must be taken to *thoroughly* dry the part wetted. Use perfectly dry and slightly warmed bath-

towels. When any irritation of the skin exists, some dry absorbent powder, such as powdered starch, should be dusted on after drying. If the patient is at all exhausted after the washing, keep him between the blankets for a short time, and put hot-water bottles (covered with flannel) by his side and to his feet and give him a warm drink.

The hair should be combed and brushed daily. Women's hair may be plaited on each side. Protect the pillow with a clean towel during the hair toilet.

The teeth should be cleaned twice every day. If the patient is too ill for a tooth-brush to be used, the teeth should be gently wiped over with a small piece of wool on a stick, the wool being previously dipped in some boracic or other antiseptic lotion. In some cases of illness the tongue gets very dirty. The nurse should clean it by gently wiping it with a piece of clean linen dipped in a mixture of boracic acid, lemon juice, glycerine, and water.

PATIENT'S CLOTHING

The same remarks as to the necessity of keeping the patient clean apply to the clothing worn. All night-clothing should be frequently changed, as the emanations from a sick body quickly render the clothes unfit to wear, and a speedy recovery cannot be expected to take place if the body is kept surrounded with impurities.

All the clothes should be *thoroughly* aired before

being used, and should be slightly warmed before being put on.

If the patient has an injured arm or has any difficulty in moving one arm, that arm should be taken out of its sleeve *last* and put *first* into the sleeve of the fresh garment. Night-dresses that open down the whole length of the front make the changing easier.

In some cases the doctor has to frequently examine the back, as in some chest cases and in cases of bed-sores, and it is a great advantage then to use night-dresses that open all down the back or one side.

Patients with bad circulation should wear bed-socks, which should be frequently changed.

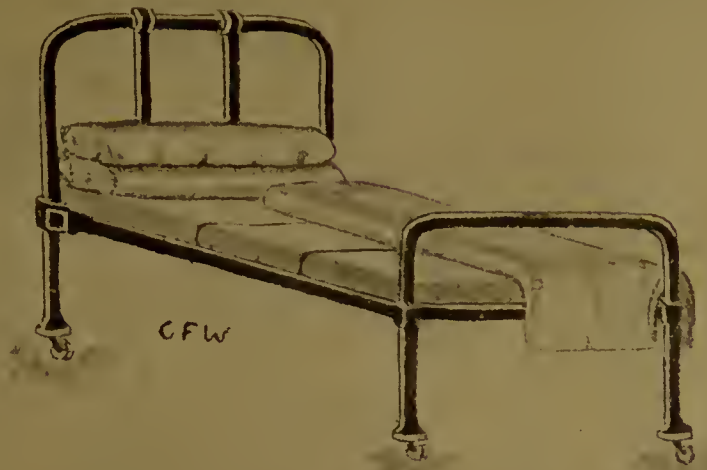
When sufficiently convalescent to be able to sit up in bed, a bed-jacket is much better than a shawl to wear. A shawl admits air under it, hampers the movements of the arms, and leads to upsetting of cups and tempers—especially with male patients.

It is not much use putting clean clothes on a patient and leaving the sheets and blankets unaired and unchanged.

BED-MAKING

A single blanket is first spread over the mattress. Next the under-sheet is put on and well tucked-in all round. A mackintosh to reach from the pillows to below the knees is now put in place. A draw-sheet, which consists of a sheet folded lengthwise, is put on over the mackintosh ; the end is tucked in on one side ; on the other side the end is folded flat and

The Bed



then passed under the mattress. The two pillows are now put in place. Now take the top-sheet and place it over the bed, tuck in the foot end and about three-quarters of each side, leaving the head end free. Two blankets are next placed on the bed and tucked in. The quilt or light cover is then put on, and the top-sheet is turned back at the head of the bed. The quilt should not reach to the floor, as this would prevent free circulation of the air under the bed. It is much better to use two pillows than a bolster and a pillow, as by doing so the under-sheet can be kept quite smooth. If a bolster is used, it should have a proper cover and be used as a pillow. If no cover is available, the top-sheet is turned back from the head of the bed over the bolster and tucked in under the front of it.

There are two ways of keeping the bed well-aired. The first is to have two beds, one for day use and one for night, the clothes of the one being aired while the other bed is in use. The disadvantages of this method are that two beds are not always available; that an extra bed in a room takes up space that is better occupied by fresh air; and that a patient is not always capable of being moved from one bed to another. The second method is to have two pairs of sheets in use, one on the bed and the other airing, each pair doing duty for twenty-four hours.

CHANGING SHEETS

Of course, if the patient is able to sit up in a chair, the changing is easily done. The patient should be

wrapped in a blanket whilst in the chair. The blanket should be well wrapped round the patient, and especially round the legs and feet. The feet should be raised from the ground on a footstool.

The old sheets and blankets are then removed, the mattress well shaken up and turned, and fresh sheets and blankets, *well warmed,* are put on, and the patient returned to bed. If a second change of bed linen is not available, the old ones are hung in the air outside the bedroom for a short time, warmed, and then returned.

If the patient is not able to leave the bed, the sheets are changed in the following manner.

UNDER-SHEET AND DRAW-SHEET

Have your fresh sheet and draw-sheet ready, *well warmed* and separately rolled up lengthwise to half their width. Remove the quilt and pillows, leaving the top-sheet and blankets to cover the patient. Gently turn the patient on to his *right* side (this can easily be done by means of the draw-sheet or by putting your hands under the left shoulder and hip). Roll up the draw-sheet (and mackintosh if one is used) lightly from the left half of the bed, towards the patient. Untuck the bottom sheet and roll it up lengthwise towards the patient. Place the rolled-up half of the fresh sheet and draw-sheet close to the patient's back, and spread the unrolled portion smoothly over the left half of the bed and tuck it in. Now turn the patient

back over the rolls of the fresh sheet and draw-sheet and just sufficiently on to his left side to allow the used sheet and draw-sheet to be removed. The clean rolls are then drawn through and spread smoothly over the other half of the bed and tucked in. Shake up the pillows and replace them.

In some cases—*e.g.* fractures of the legs—the patient cannot be turned to one side, and the under-sheet must be changed from foot to head, unrolling the clean and rolling up the dirty sheet as one goes along. The draw-sheet is put on *after* the under-sheet and not with it, as in the ordinary way. It is rolled up and passed across the bed from side to side, the patient's buttocks being gently raised to allow of this being done. Or the end of the draw-sheet is securely pinned to one end of the old draw-sheet, and is then pulled across the bed by drawing on the old one.

TOP-SHEET AND BLANKET

The easiest way to change these is to remove the quilt and then place the clean sheet over the old top clothes, and over the clean sheet place the fresh blanket. A person then stands on one side of the bed and holds the top and bottom of the clean clothes firmly with the hands wide apart, while another person withdraws the dirty clothes from the other side, holding them at the top and bottom with the hands wide apart.

To change them single-handed, the old sheet and blanket are turned up on one side of the bed and the

fresh ones placed on the top as before and are firmly tucked in on the one side. The nurse then goes to the other side and withdraws the old ones and then tucks in the fresh ones.

N.B.—*There is always a good opportunity of washing and attending to the patient's back whilst changing the under-sheet.*

LIFTING PATIENTS

A certain amount of practice is required to enable one to move satisfactorily helpless patients, but with practice this can be done without undue exertion. To lift a heavy patient two persons join hands from opposite sides of the bed, one hand being under the shoulders and the other under the hips. If the patient is very weak, a third person should support the head, or, in cases of fractured legs, support the legs.

With a double bed the two nurses stand on the same side. The nurse at the head of the patient passes one hand under the near armpit and the other across the body and under the far armpit. The other nurse stands opposite the patient's hips and passes her hands under the body, one hand above and the other below the hips.

In both cases the secret of easy lifting is for both nurses to act *exactly simultaneously* and to do the lifting by first bending the knees and then straightening them. Single-handed a nurse can lift a *light* patient up in bed by leaning over the patient from the left side of the

bed and passing her right hand under the patient's left armpit and her left hand across the body and under the right armpit. At the same time the patient clasps his hands round the nurse's neck. The nurse then straightens herself and so lifts the patient.

To move a patient from one bed to another, untuck the underclothes of the bed on which the patient is, place the two beds side by side, and then draw the patient over by means of the underclothes.

To raise the patient's head, pass your hand under the pillow and raise both pillow and head.

BED-RESTS

These often have to be used in cases of chest diseases, and of course during convalescence. The best one is a proper hinged bed-rest with a cane or wire back.

BED-REST

A turned-up chair may be used as a substitute, a pillow being used to pad the back of the chair.

Patients are very apt to slip down the bed and off the rest unless means are taken to prevent this. In chest cases a short pole should be placed under the mattress about the middle of the bed; this raises the mattress up and thus prevents slipping.

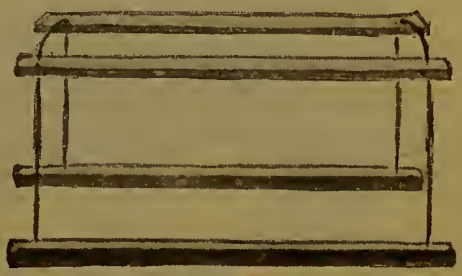
A small *firm* bolster may be used instead, placed

just below the buttocks, and the ends securely fastened to the head of the bed by pinning one end of a thick

IMPROVISED BED-REST

calico bandage to each end of the bolster and then tying the bandage to the head of the bed.

For convalescent patients, who are more capable of helping themselves, it will be found sufficient to raise the foot of the bed about six inches by placing blocks of wood under each of the two feet of the foot of the bedstead.



BED-CRADLE

CRADLES

These are used to prevent the bedclothes pressing on an injured part. They are generally used to keep the clothes off the legs.

If a proper cradle cannot be obtained, a small stool may be used or a band-box turned upside-down, with

IMPROVISED BED-CRADLE. NO. 1

the lid removed and with two holes cut in the sides through which the leg is passed.

IMPROVISED BED-CRADLE. NO. 2

A wooden hoop may also be used. It is sawn in

half, and the two halves screwed together at more or less right angles to one another.

The nurse must be on the look-out for sore heels. To prevent these a soft pad should be placed under the leg just above the heel. It should be just large enough to raise the heel from the bed. It is as well to sew a bandage to each end of the pad and bandage the pad in position. The illustration above shows the pad in position, but not bandaged.

WATER-BEDS AND PILLOWS

Are used when a patient has to be confined to bed for a long time, and more especially in cases of paralysis. Care must be taken to see that the water-bed does not leak. The *empty* bed is first placed on the bedstead, and *warm* water is poured in through a funnel until it is about half full. Air is then blown in with the bellows, which are usually supplied with the bed, until the bed is *fairly* tense. A blanket is placed over the water-bed before the bed is made.

Water-beds are easily damaged, so never move one when filled with water.

Water-pillows are filled in the same way. Care must be taken to see that the patient lies in the centre, otherwise he will soon slip off.

Air cushions are cheaper, but not so useful.

PRACTICAL WORK

Changing sheets and making beds. While a portion of the class are doing this the remainder should be doing bandaging.

Questions on Chapter III

1. *Why is cleanliness so essential in cases of sickness?* (p. 34).
2. *What amount of washing should be done each week?* (p. 34).
3. *What would you do if the patient was exhausted after being washed?* (p. 35).
4. *How do you change the clothes in cases of injuries to the arms?* (p. 36).
5. *What preparation do you make if the back has to be frequently examined?* (p. 36).
6. *Why is a bed-jacket better than a shawl?* (p. 36).
7. *How do you make a bed?* (p. 36).
8. *How do you change the bedclothes?* (p. 38).
9. *What is a draw-sheet, and how is it changed?* (p. 39).
10. *How are patients lifted in bed?* (p. 41).
11. *What is the secret in easy lifting?* (p. 41).
12. *What are bed-rests, and how can you improvise one?* (p. 42).
13. *How do you prevent patients from slipping down the bed when using a bed-rest?* (p. 42).
14. *What are bed-cradles, and what are they used for?* (p. 43).
15. *How can you improvise one?* (p. 44).
16. *How do you fill a water-bed?* (p. 45).
17. *When are water-beds used?* (p. 45).

CHAPTER IV

Note to lecturers.—Three clinical thermometers should be shown at the lecture, each registering different temperatures. A temperature chart filled in should also be shown.

OBSERVATION OF THE PATIENT

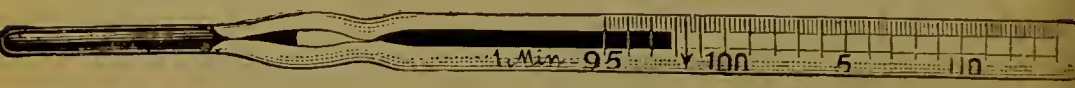
THIS is one of the most important as well as one of the most interesting duties of a nurse. It is especially important in the case of young children, who are not able to describe their sensations. The doctor only sees the patient for a short time each day, and must therefore depend to a great extent upon the intelligence and watchfulness of the nurse for a report of what has occurred between his visits. Facts and not opinions should be reported, and observations should be written down at the time they are made so as to be accurate. By careful observation and the use of common sense a nurse can often forestall a patient's needs.

When a night and day nurse are employed, the one on duty at the doctor's visit must be able to answer for the other. She must, therefore, carefully read the report of the nurse who has gone off duty. The following are the chief points to be noted in a nurse's report. The temperature, pulse rate, respiration rate, appetite, general appearance, and general condition of patient (quiet, restless, irritable, sleepy, noisy, delirious, etc.), cough, rashes, action of bowels and kidneys, expectoration, pain, and the effect of remedies.

TEMPERATURE

This is taken with a *clinical thermometer*. In this

instrument the column of mercury rises when exposed to heat, but does not fall again. This is due to the fact that the column of mercury is cut into two portions a short distance above the bulb. The upper part is called "*the index.*" To get the index down, after reading off and charting the temperature, the thermometer must be *shaken sharply.*



CLINICAL THERMOMETER

The range of scale on most of these instruments is from 95° F. to 110° F.; in a few the range is rather greater (the one illustrated goes as high as 114° F.). The degrees are shown by *long* marks, every fifth one being numbered on the opposite side of the channel for the column of mercury. The space between each two degrees is divided into five equal parts by four *short* marks, each representing one-fifth (or two-tenths) of a degree. These "tenths" of a degree are spoken of as "points." Thus a thermometer (as in the illustration) which registered 98 and four-tenths of a degree, that is, two short marks above the long 98 mark, is read as ninety-eight-point-four, and is written 98·4°. The average or "*normal*" temperature of the body is 98·4° F., and a small arrow-head is generally shown on the thermometer to mark this point. A thick line is drawn on a temperature chart to mark the point.

To take the temperature, the column of mercury must be shaken down below *normal.* Place the bulb in the armpit, under the tongue, or, in children, in the fold of the groin.

Precautions : 1. *Armpit.*—See that the armpit is dry ; that the *skin* is in contact with the bulb on *all* sides the *whole* time. To ensure this, bring the arm well across the chest and keep the elbow well pressed in to the side.

2. *Under the tongue.*—See that the bulb is really *under* the tongue ; that the patient has not had anything hot or cold to drink for at least ten minutes before the temperature is taken ; that the lips are kept closed and that the patient breathes through the nose ; that the teeth do not bite the stem of the thermometer.

3. *Fold of groin.*—See that the groin is dry ; that the skin is in contact with the bulb on all sides. To ensure this, flex the thigh on the body and hold it there.

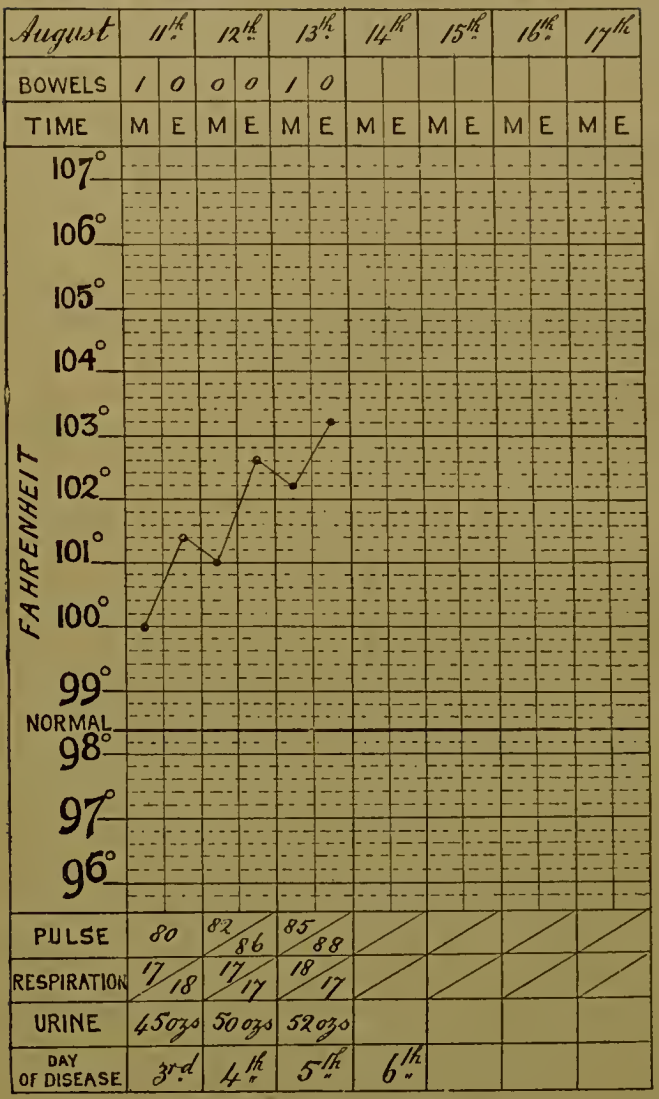
On the back of the thermometer is generally marked the length of time the instrument takes to register the temperature—*e.g.* 30 seconds, 60 seconds, 3 minutes, etc. If not so marked, five minutes should be taken as the time required. It is always safer to leave the thermometer in position about a quarter of a minute longer than the stated time.

At the end of the time take the instrument out, read the temperature, and at once chart it. The illustration shows how this is done.

Wash the thermometer in *cold* water, dry it carefully, and return it to its case.

The temperature is taken at stated times every day. If no directions are given by the doctor, take it at 10

NAME R. Bass DISEASE Enteric Fever



TEMPERATURE CHART

a.m. and 6 p.m., and whenever there is any marked change in the patient.

The temperature chart is for the doctor's inspection alone; it is not to be shown to the patient nor to his friends.

When a patient's temperature is above normal, he is said to be "feverish." The fever is called slight when the temperature is between 99° F. and 101° F., moderate between 101° F. and 103° F., and high when above this.

THE PULSE

Note the *frequency*. This is ascertained by counting the number of beats in the artery at the root of the thumb with the pad of the index finger. The beats are counted for one minute, timed by the "seconds" hand of a watch.

The pulse is affected by nearly all illnesses. The higher the temperature, the faster the pulse is the rule.

The regularity of the beats should be noted. In certain injuries of the brain and in some kidney diseases the pulse will be found to be very hard, the artery feeling like a solid tube. The pulse is then said to have a "*high tension.*" In other conditions, such as fainting, it will be found to be very soft and very small (*low tension*). The pulse should only be counted when the patient has been quiet for some little time.

The normal rate for an adult lying down is from 70 to 75 a minute, for a child of three years from 90 to 100, and for one a year old from 115 to 120.

N.B.—It needs a good deal of practice to be able to count the pulse correctly.

The pulse-rate should be charted as soon as taken.

THE RESPIRATION

Note the *frequency*. In many diseases of the heart and lungs the frequency of the respiration throws much light on the severity or progress of the disease.

Never let the patient know when you are counting his respirations (pretend to be counting the pulse).

There are two ways of "taking the respiration."

1. By *watching* the movements of the chest or abdomen. This is the better method.

2. By *feeling* the movements by lightly laying the hand on the chest or abdomen.

The respirations should be taken when the patient has been quiet for some little time. The *normal rate* for an adult is about fifteen times a minute, and for young children about twenty times.

Note whether the nostrils dilate with each inspiration; whether there is any wheezing; and if the breathing is easy and quiet, or laboured and noisy. Chart the respirations as soon as taken.

RIGORS

These are sometimes called "cold shivers." They are frequently met with in *ague* and at the commencement of certain diseases, such as *pneumonia, influenza,* and some of the infectious fevers. They are also seen in certain *surgical cases* when *matter* (*pus*) is being formed. The patient complains of feeling cold although the temperature is raised. His body shivers and his teeth chatter.

The patient should be covered up warmly and should have something hot to drink. Hot-water bottles should be put in the bed. The temperature should be taken at once and charted. The time and duration of the attack should be noted.

SLEEP

The time and duration, whether restful or disturbed, and whether the patient feels rested afterwards should be noted. If the patient talks much during his sleep this fact should be put down.

POSTURE

The position a patient lies in should always be noted. In abdominal diseases he often lies with his legs drawn up. In certain heart cases he is often more comfortable lying with his head and shoulders raised high, and in some chest complaints he can only lie on one side. The nurse should do all she can to help the patient to keep in the position he finds most easy. Thus a pillow put under the knees when bent up is generally a comfort to the patient. When he prefers lying on one side, a pillow should be put against the back. The means taken to prevent a patient slipping down when propped up in bed are given on p. 42.

In some cases of heart disease and sometimes after diphtheria it is dangerous to allow a patient to raise himself or even to be raised.

THE SKIN

The occurrence of perspiration, rashes, and dry heats are to be observed. Pallor, flushing, cyanosis (*i.e.* blueness), are also to be noted.

When a patient is long confined to bed, the nurse

must watch for redness of the skin of the back and heels which might indicate the oncoming of a bed-sore.

THIRST

In some cases of severe vomiting, in stoppage of the bowels, in diabetes, and in some cases of high fever there is intense thirst. This should be noted and reported.

The best way to quench thirst is to give tepid drinks, ice to suck, or the following lemonade. The juice of three lemons to a pint of water; add the whites of two eggs, well beaten-up, and a teaspoonful of glycerine.

VOMITING

May be caused by indigestible food, by diseases of the stomach, obstruction of the bowels, poisons, by certain nervous diseases and head injuries, and is often seen at the beginning of such diseases as scarlet fever, whooping cough, etc.

Note if it occurs before, after, or independently of food; whether it is accompanied or followed by pain; if it is preceded by retching or feeling of nausea, and whether the vomiting relieves the pain. The character of the vomited matter should be noted, and a specimen saved for the medical man to see.

Treatment.—Give ice to suck or iced drinks. A small mustard-plaster applied to the pit of the stomach is often useful. Keep patient lying flat, with his head

and shoulders slightly raised and his head turned on one side.

PAIN

Patients vary much as to their ability to bear pain, and the nurse must note carefully and use her own judgment in recording the *severity* of pain.

The exact situation, character (*e.g.* darting, boring, dull aching, cutting, etc.), duration, and whether localised to a small area or widely spread should be noted. Is it accompanied or followed by sweating, collapse, or vomiting; how is it aggravated and how relieved, and does it affect the appetite and sleep?

COUGH

This may be caused by the presence of phlegm in the air-passages or by certain diseases of the stomach. The chief points to observe are the frequency, whether worse by day or night, whether dry or accompanied by phlegm; short and sharp or deep and prolonged; whether accompanied or followed by hoarseness, vomiting, whooping, etc., and whether affected or not by the position of the patient.

Coughing may often be relieved by hot drinks, taking a little black-currant jelly, or by sucking black-currant lozenges.

EXPECTORATION

Note the character (*e.g.* blood-stained, thick and sticky, or thin and watery), colour, quantity. Whether brought up easily or with difficulty.

Phlegm should be received in a proper spittoon containing some disinfectant, such as sanitas or carbolic acid (1 in 20). If no vessel is handy, the phlegm should be received on pieces of rag, which should then be burnt. A specimen should be saved for the doctor's inspection.

SPITTOON

URINE

The average amount passed in the twenty-four hours is $2\frac{1}{2}$ pints.

Points for observation are the colour, quantity, frequency of passing, accompanied or followed by pain. A specimen should be retained for the doctor to see.

EFFECT OF REMEDIES

This should be carefully noted. The following are a few of the commonest drug effects which need watching for and reporting on :

Opium.—Sleepiness, size of pupil, constipation, relief of pain.

Arsenic.—Pain in eyes and stomach, sickness, diarrhœa.

Mercury.—Increased flow of saliva, redness and tenderness of gums.

Quinine.—Headache, deafness, "singing in ears."

Iron.—Black motions and tongue, aching of teeth, constipation.

Antipyrin.—Fainting and collapse.

Phenacetin.—Fainting and collapse.

Belladonna.—Dilatation of pupils, delirium, dry throat.

Strychnine.—Twitchings and convulsions.

BED-SORES

These are generally the hall-mark of inefficient nursing. They are most often seen in thin patients, who have been confined to bed for some time, and are common in cases of paralysis and in old people with feeble circulation. The commonest situations are the back, hips, and heels. In all long-continued illnesses every attempt must be made to prevent their occurrence, and the *two main points* to be kept in mind are: (1) to remove pressure; (2) to keep the patient dry.

1. *To remove pressure.*—The patient's position in bed should be changed as often as it can be done with safety. The use of water-beds, water-pillows, air-cushions, ring and horse-shoe shaped pads, will be found of great benefit.

2. *Keeping patient dry.*—Constant attention to the patient's back in cases of incontinence of urine (wetting the bed) and the proper use of the draw-sheet will do much in keeping the patient dry and clean.

The nurse should examine the back *every day* for tender and reddening spots, and should cleanse the part with warm water, dry *thoroughly*, and then dust on some violet, starch, or zinc powder. The part

can be hardened by dabbing on a little spirits of wine or brandy.

In cases of dribbling of the urine a proper bed urinal should be used or some teased-out tow may be placed between the legs. This must be frequently changed.

The doctor's attention should be drawn to the part, and his instructions must be strictly carried out.

DELIRIUM

This is a mental affection in which the intellect is uncontrolled. It is common in all feverish states, in certain diseases of the brain, heart, and kidneys. There are three varieties.

1. *Quiet delirium.*—In this variety the patient is more or less heedless of what is occurring around him. He talks in a low, muttering voice, and may have delusions.

2. *Active delirium.*—In this kind the patient is very active. He talks loudly and disconnectedly and tries to work out the ideas that are passing through his mind. He may attempt suicide or homicide.

3. *Delirium tremens.*—Here the patient is restless, his limbs tremble ; he has delusions and is much frightened.

Chief nursing points.—Much care and watchfulness are required, and great tact has to be used. The patient must not be left for a single moment, and there should be a second nurse within call. He should be kept in a quiet and rather darkened room. He should be humoured and not flatly contradicted or annoyed in any

vay. Fire-irons, knives, razors, etc., should be removed from the room, and the windows fixed so that hey cannot be opened widely enough for the patient o get out.

Tepid sponging is often useful, and it may be necesary to wrap the patient up in a sheet if he becomes very violent.

PRACTICAL WORK

The shoulder and groin spica bandaging. The heel bandage. The eye bandage. Reading clinical thermometers and filling up temperature charts.

Questions on Chapter IV

1. *Why is observation so important in the case of sick children?* (p. 47).
2. *Why should a day nurse read the night nurse's report carefully?* (p. 47).
3. *What are the chief points to be noted in a report?* (p. 47).
4. *Describe a clinical thermometer* (p. 48).
5. *What is the normal temperature of the body?* (p. 49).
6. *When and how is the temperature taken?* (pp. 49, 50).
7. *What is a slight, moderate, and a high fever?* (p. 50).
8. *How is the pulse rate taken, and what is the normal rate?* (p. 51).

9. *How is the respiration rate taken, and what is the normal rate?* (p. 52).
10. *What are rigors, and what are the chief points to be noted?* (p. 52).
11. *What are the chief points to note about sleep, posture, the skin, thirst, vomiting, pain, and cough?* (pp. 53-55).
12. *What are the chief points to note about expectoration, urine, and the effects of remedies?* (pp. 55-56).
13. *What kind of cases are bed-sores most likely to be seen in?* (p. 57).
14. *What precautions should be taken to prevent them?* (p. 57).
15. *What are the different kinds of delirium?* (p. 58).
16. *What are the chief nursing points in a case of delirium?* (p. 58).

CHAPTER V

Note to lecturers.—The infectious fevers should be dealt with in a general manner, and emphasis directed more especially to disinfection and the precautions to be taken by the nurse.

INFECTION AND DISINFECTION

INFECTIOUS DISEASES

INFECTIOUS diseases are caused by germs, which are small living organisms of microscopical size belonging to the fungus or vegetable kingdom. These germs, or microbes, are present in the air, water, and earth. Germs manufacture within themselves poisons, called *toxins*; these *toxins* are poured into the blood of the patient and produce the disease. Microbes are very prolific, and each single one is capable of producing 17,000 or more microbes of the same kind in twenty-four hours. When germs gain admission into the blood of a patient, the patient's tissues at once begin to form a substance, called *antitoxin*; and all the time the germs are multiplying and are manufacturing and pouring out their toxins, the tissues of the patient are producing their antitoxins, which neutralise the poisonous effects of the toxins.

When sufficient antitoxin has been produced, not only are the toxins neutralised, but the germs them-

selves are killed and the patient then becomes convalescent. In fatal cases the germs multiply so quickly and pour out such quantities of toxins that the patient dies before his tissues have produced sufficient antitoxin to kill the invading germs. It will thus be seen that a fight goes on between the germs and the tissues of the patient, and that sometimes one wins and sometimes the other.

When the tissues of the patient win, the antitoxin, which they have produced, remains in the blood for a longer or shorter time and renders the individual immune against a further invasion of that particular kind of germ. Sometimes the antitoxin remains in the blood for life, as is generally the case after small-pox, and the patient does not have a second attack of the disease. In influenza, on the other hand, the antitoxin only remains for a short time, and the patient is liable to a second attack if exposed to infection after the disappearance of the antitoxin.

A germ is only capable of producing its own particular disease, that is, the germ of influenza can only produce influenza. In the same way the antitoxin produced during one kind of disease can only protect the patient against that particular disease, and that only whilst the antitoxin remains in the blood. In certain diseases—*e.g.* diphtheria—doctors inject artificially prepared antitoxin into the patient to assist that being produced by the patient's tissues. By this means the germs are overcome more quickly, and the patient makes a more rapid recovery.

In infectious diseases a certain number of the germs are thrown out of the patient's system either by the breath, excreta, or through the skin, and these may be the direct or indirect cause of infection in others. The infection is direct when the germs pass from the patient through the air to a person near by; indirect when the germs find their way to water or milk, which is subsequently drunk, or on to the clothes of one person who then carries them to another. Occasionally animals, such as dogs and cats, carry the infection, and flies frequently do so.

Infected milk is a common source of infection in scarlet fever, tuberculosis or consumption, typhoid and diphtheria. Shell-fish and water-cress may also carry infection after being contaminated by infected water. Germs rapidly lose their power of infection when exposed to the open air and the direct rays of the sun.

Infection used to mean the communication of disease by the air; *contagion* by actual contact with the patient; now, however, the two words are used to denote either method.

Infection may enter the body in several ways: by the lungs, stomach, the lining membrane of the throat, nose, eye, and occasionally through a wound or crack in the skin, as in tetanus or lock-jaw.

It is important to remember that infection may be spread by slight cases which have not been recognised or treated. The rash of measles and of scarlet fever has been put down by the friends as nettle-rash. Diphtheria has been looked

upon as an ordinary sore throat and chicken-pox as "heat spots." These mistakes are dangerous to the patient and, as a source of infection, to the general public. School children are especially likely to spread infection when suffering from a mild attack of an infectious disease if not at once kept from school. It is the duty of the parents to notify the school authorities whenever their children have any sort of infectious disease.

FEVERS

Fevers are said to be "*endemic*" when limited to certain small areas; "*epidemic*" when widely spread; "*sporadic*" when scattered—a few isolated cases occurring in one place and a few in another; "*zymotic*" when they are preventible by sanitary means.

STAGES OF FEVERS

Most fevers are divided into four stages:

1. *Incubation* is the period that elapses between the patient being infected and the appearance of the first symptom. During this period the germs are multiplying and manufacturing their toxins. The patient may feel quite well or he may have indefinite feelings of being "out of sorts."

2. *Invasion.*—The toxins have now been manufactured in sufficient quantity to poison the whole system, and this they do either gradually, as in diphtheria, or, as is more often the case, suddenly, as in scarlet fever. The first symptom of this poisoning is often a rigor

or shivering fit (in young children convulsions). The temperature goes up, and later on the rash, if any, appears. The patient generally complains of headache. This stage may last days or weeks.

3. *Defervescence or decline.*—The antitoxin, produced by the patient's tissues, has overcome the germs. The temperature returns to normal either suddenly, when the disease is said to end by "crisis," or, as is more often the case, gradually, when the disease is said to end by "lysis."

4. *Convalescence* lasts until the normal state of health is regained.

MEASLES

This is the most common of all the infectious diseases, owing to the fact that the most infectious period is during the latter part of the incubation stage and before the disease is recognised.

Incubation period is about twelve days.

Symptoms.—Cold in the head, running eyes, feverishness, sudden rise of temperature, slight dry cough. *Rash* appears on the fourth day, at first on the forehead, face, and neck, and later all over the body. It begins to fade away in two or three days.

Chief complications.—Bronchitis, pneumonia.

Infectious.—Through exhalations.

Chief nursing points.—Keep room well ventilated and at an even temperature of 65° F., or as prescribed by the medical attendant. A steam bronchitis kettle may be

ordered by the doctor. Keep chest covered all round with cotton wool; or poultices are to be used if ordered. Protect patient's eyes from strong light. Note any marked increase in the rapidity of the respirations. Guard against chill, especially during convalescence. Quench thirst with barley-water flavoured with lemons. Eyes may have to be bathed night and morning with boracic lotion. Warm sponging is soothing.

GERMAN MEASLES

This disease resembles both measles and scarlet fever.

Incubation about twelve days.

Symptoms.—A rash similar to that of measles, but the spots are smaller. Appears on the first, second, or third day. Slight sore throat. Enlarged glands at back of neck. No cough as a rule.

Complications.—None.

Infectious.—Through exhalations.

Chief nursing points.—None.

SCARLET FEVER

Also called "Scarlatina." It varies much in intensity. Sometimes is so mild as to cause no discomfort.

N.B.—Mild cases can *readily* spread infection.

Incubation.—Usually one to three days and never more than six days.

Symptoms.—Sudden rise of temperature, often accompanied by vomiting. Sore throat and sometimes shiver-

ing. The *rash* appears on the second day (sometimes at the end of the first); at first on the chest and neck, and later spreading over the body, leaving the face clear. Begins to fade in three or four days or earlier. The disappearance of the rash is followed by *desquamation*, or *peeling*, which usually goes on for about six weeks.

Chief complications.—Rheumatism, heart, kidney, and ear diseases.

Infectious.—Through the peeling skin and any discharges there may be from the nose, throat, and ears.

Chief nursing points.—Daily warm baths to hasten the peeling. Avoid chills. Watch for any puffiness of the face and especially round the eyes, any swelling of the feet or ankles, and for any dark coloration of the water, and report at once to the doctor. Anointing the body with eucalyptus oil is sometimes ordered by the doctor; when this is so, it must be done thoroughly from head to feet. *Spraying the throat* has also to be carried out sometimes. To do this, place the patient in a good light, and gently press the tongue down with a spatula or handle of a tablespoon (be careful not to place the spoon too far back or the patient will retch). The mouth should be opened wide, the nozzle of the spray placed between the teeth, and the throat gently but well sprayed both at the back and on both sides.

Earache and any discharge from the ears must be noted and reported.

Scarlet fever is exceedingly infectious throughout all its stages, and complete isolation of the patient is necessary.

ENTERIC FEVER (TYPHOID)

This disease is commonest in the autumn.

Infection is chiefly through the evacuations which contaminate water subsequently used for drinking purposes or for washing food or drinking utensils. Shell-fish and watercress may also be contaminated by the water, and if then eaten may give rise to the disease.

Soiled bed- and body-linen may also spread the infection. Flies frequently act as carriers of the disease.

Incubation.—About twelve days or rather more.

Symptoms.—The invasion is gradual, the temperature rising generally day by day for a week. The patient feels poorly and loses his appetite. Frontal headache and pains in the back and calves of the legs are common symptoms. The abdomen becomes tender and distended. The *rash* comes out about the seventh day, and is often very insignificant, especially in children. Yellowish liquid diarrhœa is common, and more especially in adult patients. The actual disease lasts about three weeks.

Chief complications.—Relapses, hæmorrhage from the bowels (especially during the third week), bronchitis, pneumonia, bed-sores, perforation of the bowel.

Chief nursing points.—Good nursing is probably more important in this disease than in any other. Perfect rest, careful feeding, absolute cleanliness. The doctor's orders as to diet must be *absolutely* obeyed. Many patients have lost their lives through disobedience in this respect. Liquid diet is generally ordered to

be given at *regular* frequent intervals (usually every two hours). The craving for solid food, especially after the second and third week, must be fought against. The bowels are ulcerated and thinned in patches, and solid food may easily cause perforation of the bowel and death.

No additions to the diet may at any time be made without the sanction of the doctor. Precautions must be taken against the occurrence of bed-sores, strict attention to cleanliness being observed.

A water-bed may have to be used. *All excreta must be disinfected at once.* Carbolic acid (1 in 20) should be poured into the bed-pan and allowed to stand for half an hour before being emptied. A specimen has often to be kept for the doctor's inspection. This specimen should be kept covered up in the water-closet. *The nurse's hands must be washed and disinfected at once after attending to the patient.*

The doctor should be at once summoned if there be a marked drop in the patient's temperature, and if he, at the same time, becomes pale and complains of pain and increased swelling in the abdomen.

The patient must have special feeding utensils, and these should be washed and disinfected after use, and must be kept separate from the rest of the household crockery. Soiled clothes and bed-linen should be placed in some disinfectant, such as carbolic acid (1 in 20), for an hour or two and then boiled. Special attention must be paid by the nurse to keep the patient's teeth clean, as they generally become covered with

brown crusts. All food in the house should be kept covered up in the summer to prevent flies settling on it.

CHICKEN-POX

This is, perhaps, the least serious of all the infectious fevers. It is sometimes severe, especially in young girls.

Incubation period.—About fourteen days.

Symptoms.—The invasion is short and often so mild as to be overlooked. The *rash* appears on the first day. General symptoms are absent or of a very mild character, such as slight headache, a little loss of appetite, etc. The actual disease generally lasts about a fortnight.

Complications.—None as a rule.

Infectious.—Through exhalations.

Chief nursing points.—The child should be kept separate from the others, and should be prevented from scratching and picking the spots.

SMALL-POX

This disease is seldom seen in a community that is well protected by vaccination, such as England.

Incubation.—About twelve days.

Symptoms.—The invasion is generally sudden, with rigors, vomiting, and severe headache. Severe pain in the small of the back is commonly complained of. The *rash* appears on the third day, and begins to fade away on the ninth.

Complications.—Seldom seen now. The chief are inflammation of the eyes, bronchitis, and pneumonia.

Infectious.—Through exhalations.

Chief nursing points.—Strict isolation; removal to a fever hospital is best. The nurse and all who come in contact with the patient should be revaccinated at once. A light, well-ventilated room should be used. The eyes should be watched, and bathed night and morning with boracic acid lotion.

VACCINATION

Vaccination is important for the well-being of the community. Babies should be vaccinated when about four months old, and children should be revaccinated when about twelve years old.

Unprotected persons are attacked about five times as often as those who are protected, and the death-rate is about ten times as great amongst unvaccinated people during epidemics as it is amongst those protected by vaccination.

DIPHTHERIA

This is a serious disease, affecting the throat generally.

Incubation period.—Two to ten days.

Symptoms.—The invasion is gradual, the temperature going up slowly. There is increasing difficulty and pain on swallowing. The tonsils and soft palate become inflamed, and later on greyish-white membranes

appear on them. There may be a discharge from the nose.

Chief complications.—Weakness of the heart, kidney disease, paralysis, especially of the soft palate.

Chief nursing points.—Rags should be used for wiping the nose, and should afterwards be burnt. The nurse should take care that the patient does not cough into her face ; should he do so, she must at once wash her face in some antiseptic lotion. The doctor's orders as to the patient not being allowed to sit up in bed must be rigidly adhered to. Note and report the slightest tendency to fainting ; fluid nourishment taken by the mouth and returning through the nose should be reported. The patient should be guarded against being disturbed by any sudden noise.

Infection is through the breath and through discharges from the nose and throat. For local throat treatment see Scarlet Fever.

INFLUENZA

This is a very infectious and common complaint.

Incubation.—One to four days.

Symptoms.—The invasion is sudden. There is general aching more or less all over the body. The temperature is raised, and often there is a dry cough and the general symptoms of a cold in the head. The temperature usually remains high for four or five days and then returns to normal, leaving the patient extremely weak.

Influenza takes many forms, but the above may be taken as the more common variety.

Chief complications.—Pneumonia, heart affections, and ear trouble.

Chief nursing points.—The patient should be kept warm in bed, and should be given light nourishing food. Any marked increase in the respirations and any pain in the ears should be reported.

WHOOPING COUGH

Is more common in children, but may occur at any age.

Incubation.—About twelve days.

Symptoms.—The invasion is gradual, fever moderate or slight, cough is generally present from the first, but the characteristic whoop may not be heard for two or three weeks. A series of short quick coughs—the child getting more and more red in the face—followed by a long inspiration with or without the whoop, is characteristic of the disease. The disease is often fatal in very young and in old people.

Complications.—Persistent vomiting, convulsions, lung trouble.

Chief nursing points.—The patient should generally be confined to two rooms, one for day use and one for night. An even temperature of about 60° F. should be maintained. The rooms should be well ventilated, and in the unoccupied room the windows and door should be thrown wide open.

In favourable weather the child may get out of doors, but must keep away from other children.

If the patient is often sick after a meal, he should be given some more food, which should be light and digestible.

If the child has a severe convulsion, the nurse should put her finger at once on the back of the tongue and draw it well forward; a hot sponge should be applied to the front of the throat, while cold water is sprinkled on the face.

MUMPS

May occur at any time of the year. It is chiefly confined to children and young adults.

Incubation.—One to three weeks.

Symptoms.—Painful swelling of the glands at one or both angles of the jaw, slight fever.

Chief nursing points.—The face should be protected by being covered with cotton-wool or flannel. The diet should be nourishing and light.

Mumps is very infectious, and the child should be isolated.

DISINFECTION

Disinfection means the destroying of germs, and disinfectants must be distinguished from "deodorants," which do not kill germs or even render them harmless. Deodorants, such as camphor, resins, charcoal, etc., and even chemical disinfectants must not

be relied on to *keep* the atmosphere pure. Fresh air and sunshine in abundance are the only reliable disinfectants of the *air* in an inhabited house. Saucerfuls of disinfectants in a room in infectious cases are useless.

Disinfection may be carried out by chemical and physical means, and disinfectants may be divided into six classes.

1. **Disinfecting Gases** for disinfecting the air, but not *maintaining* it pure.

(*a*) SULPHUR FUMES used for disinfecting rooms after infectious cases.

Method of use.—Close the register of the chimney; close the windows and paper up all crevices; hang all clothes, etc., on clothes-horses about the room; place 1 lb. of sulphur, for every 1,000 cubic feet of space, in an old saucepan supported on bricks in a pail half full of water; stand the pail on a large tray; pour a little methylated spirit over the sulphur and apply a lighted match; leave the room and close the door; paste up all crevices and the keyhole, using thick brown paper. Leave the room closed till the next morning, when it should be thoroughly aired and cleaned.

(*b*) FORMALIN.—A 40 per cent. solution of formaldehyde in water. This is a better disinfectant than sulphur fumes. The best way to employ formalin is by means of "tablets" and a "Lacy" formalin lamp.

2. **Disinfecting Solutions** for the disinfection of patient, excreta, linen, cutlery, etc.

(*a*) CARBOLIC ACID.—1 in 40 to 1 in 20.

(*b*) LYSOL.—A teaspoonful to ½ pint of water (1 in 80).

(*c*) CYLLIN.—1 in 80.
(*d*) IZAL.—1 in 80.
(*e*) SANITAS.—1 in 80.
(*f*) CORROSIVE SUBLIMATE (1 in 1,000) and add one ounce of hydrochloric acid to each 5 gallons of the solution. It should be coloured blue. It is *very* poisonous and should be kept locked up. It must not be used for linen or metal things.

3. Dry Heat.—Discarded rags and dressings should be burnt.

4. Moist Heat.—Instruments, crockery, etc., should be *boiled.* Bedding, clothes, etc., should be disinfected in a proper steam disinfector (the steam should be saturated, but not superheated). In the absence of a steam disinfector clothes should be soaked in a disinfecting solution and then boiled.

5. Dry Earth.—Occasionally used for disinfecting excreta.

6. Fresh Air and Sunshine.—Nearly all germs are killed when exposed to fresh air and the direct rays of the sun.

USING DISINFECTANTS

All washable clothes should be either boiled or soaked in some suitable disinfectant, such as carbolic acid, izal, cyllin, etc. (do not use corrosive sublimate), before being washed. *Crockery* should be either boiled or soaked in disinfectants same as for linen. *Cutlery* should be soaked in disinfectants (not corrosive sub-

limate). *Water* used for washing the patient and all *excreta* should be completely disinfected by the addition of corrosive sublimate, carbolic acid, etc., before being thrown away. *The nurse's hands* should be frequently disinfected by being put in sanitas lotion (1 in 40).

NURSING PRECAUTIONS IN INFECTIOUS CASES

The patient should be at once isolated. Two rooms should be given over to the patient and nurse. These rooms should be isolated as far as possible from the rest of the house. No one in the house, except the nurse, should be allowed in these rooms. A sheet wrung out in sanitas (1 in 40) should be hung up outside the sick-room, or, if there is a separate passage leading to the two rooms only, at the end of the passage. The sheet must be kept constantly wet with the disinfectant (a garden syringe can be used for this). The nurse should wear an overall large enough to completely cover her from neck to feet, and this is to be put on before entering the room and taken off behind the disinfecting-sheet on leaving the room. The hair should be covered with a linen cap.

Food, coal, etc., for the sick-room should be left outside the disinfecting-sheet for the nurse herself to take into the room. A bowl containing a solution of sanitas (1 in 40) should be kept constantly ready for the nurse to use for disinfecting her hands after attending to the patient and before leaving the room. Fresh

lotion should be put in as often as necessary, and certainly not less than once a day.

DISINFECTING THE PATIENT

After recovering from an infectious disease the patient must be thoroughly disinfected before being allowed to mix with other people. Every medical man has his own ideas as to how this should be done, and his orders must be carried out strictly. The following is an effective method. The patient is given a warm bath of 1 in 80 sanitas in the bedroom, and is then taken, with as little clothing on as possible, to a room free from infection, and is given another complete bath of 1 in 100 sanitas (or cyllin). In both baths the hair must be thoroughly washed as well as the body. The nostrils and throat are then thoroughly sprayed with sanitas (1 in 80). Clean fresh clothes are now put on. The patient is kept in the second room, which should be well ventilated, for half an hour, and then, if the weather be suitable, is warmly wrapped up and taken straight out of doors for fifteen minutes. He is then free to mix with other people. The light clothing worn by the patient when coming from the sick-room is returned to that room and is left there to be disinfected with the room. All things that may have come in contact with the patient *during the incubation period* should, for safety's sake, be disinfected with the things used during the illness.

During the course of the illness the greatest risk of

spreading infection is in the passage of the nurse through the house, and she must be conscientious in carrying out the necessary precautions. The nurse must never take her meals in the bedroom, and should always gargle her throat with some disinfectant before eating. She must take outdoor exercise every day, and when doing so she should walk straight out of the house without stopping to speak to the rest of the household. She should reserve any conversation that may be necessary until she returns from the walk. Pet animals should not be allowed in the sick-room.

VISITORS

Should also be kept out, but if, for any reason, they are allowed in, they must take all the precautions laid down, and more especially as to the wearing of an overall and head-cap and the disinfecting of their hands and face before leaving the room.

They should not be allowed to touch the patient nor the bedding, and should sit between the window and the bed.

PRACTICAL WORK

Bed-making and changing sheets. Breast bandage. Double groin spica. Making and applying a many-tailed bandage.

Questions on Chapter V

1. *How do germs cause disease?* (p. 61).
2. *How do the body tissues attempt to overcome the germs?* (p. 61).
3. *What do you mean by infection?* (p. 63).
4. *Why are mild attacks of an infectious disease very dangerous?* (p. 63).
5. *What do you mean by "endemic," "epidemic," and "sporadic" fevers?* (p. 64).
6. *What are the four stages of a fever?* (p. 64).
7. *What are the chief nursing points in a case of measles, scarlet fever, typhoid, and diphtheria?* (pp. 65-72).
8. *What are the chief points in nursing a case of whooping cough?* (p. 73).
9. *What is the meaning of disinfection?* (p. 74).
10. *What means are used in carrying out disinfection?* (p. 75).
11. *Mention four disinfectants and the strengths in which they should be used* (p. 76).
12. *How would you disinfect clothes, crockery, and cutlery?* (p. 76).
13. *How should a patient be disinfected after an infectious illness?* (p. 78).
14. *What nursing precautions should be taken in an infectious case?* (p. 77).

Disease.	Incubation.	Appearance of Rash.	Quarantine.*	Period of Isolation of Patient.	Chief Complications.	Memoria Technica (*for remembering on which day the rash appears*).
CHICKEN-POX .	14 days	1st day	3 weeks	Until disappearance of *every* spot	None	*Curiously*
SCARLET FEVER	1-6 days	2nd day	10 days	Until peeling has finished and all discharges from eyes, nose, and ears have ceased	Rheumatism, heart, kidney, and ear diseases	*Some*
SMALL-POX .	12 days	3rd day	3 weeks	Until disappearance of *every spot*	Inflammation of eyes, bronchitis, pneumonia	*Small*
MEASLES . .	12 days	4th day	3 weeks	For one week after disappearance of rash	Bronchitis, pneumonia	*Men*
TYPHUS FEVER .	12 days	5th day	3 weeks	Until convalescence is complete		*Take*
Blank . .	*Blank*	6th day	*Blank*	*Blank*	*Blank*	*No***
ENTERIC FEVER (Typhoid)	12 days	7th day	3 weeks	Not necessary	Relapses, diarrhœa, bleeding from bowels, bed-sores, bronchitis, pneumonia, perforation	*Ease*
GERMAN MEASLES	12 days	Varies	3 weeks	For one week after disappearance of rash		
WHOOPING COUGH	12 days	none	3 weeks		Vomiting, convulsions, lung troubles	
MUMPS . .	1-3 weeks	none	4 weeks			
DIPHTHERIA .	6 days	none	10 days	Until throat is declared free from germs	Heart weakness, kidney disease, paralysis	

* *Quarantine* = Incubation period plus about seven days.
** *No* fever with a rash coming out on the sixth day.

CHAPTER VI

Note to lecturers.—Show a suitable feeding-bottle for an infant, and also the way to keep it scrupulously clean.

HEALTHY AND SICK CHILDREN AND INFANTS

INFANTS require, even more than adults, an abundance of fresh air and sunshine. Their breathing powers are, at the best, but feeble, and it is therefore essential that their surroundings should be as pure and healthy as possible. Babies breathe much more through their noses than adults do, and they therefore are not so liable to "catch cold" if they are warmly clothed, as the air is sufficiently warmed before it reaches the lungs. *Short* exposures to cold are stimulating, and may be said to take the place of the adult's cold bath. *Long* exposures are bad, just as a long immersion in cold water is to an adult. When taking a baby out, the nurse should watch the effect of the cold air, and should at once return home if the baby's hands or feet get chilly. A child who is accustomed to daily out-door exercise will be found to take its meals readily and to sleep better than one who is not so accustomed. An infant should not be taken out in cold *damp* weather.

The baby should be carried in the arms until he is at least two months old; from two months a per-

ambulator can be used, and the child should lie down flat in this until seven months of age. After seven months he may sit up, provided his back and sides are well supported. When about one and a half years of age he may be taken out of the perambulator and allowed to walk for a short distance each day.

Indoors the day and night nursery should be well ventilated and should be bright sunny rooms. A baby is like a plant ; to be healthy it must be *kept* growing, and to do this you must place it under favourable conditions *every* day and *all* day, and this includes the night.

The baby should be *bathed* twice daily until he is about three years of age, when once a day will be sufficient. The temperature of the bath should be 100° F. for the first three or four months ; after this it should be lessened gradually until it reaches 65° F. in winter and 60° F. in summer.

Some babies, like some adults, strongly object to a cold bath, and in these cases the temperature must be lowered more gradually. Probably the best way to accustom a child to cold water is to give him a douche whilst sitting in a warm bath. The douche should be tepid at first and the temperature gradually lowered. A child that sleeps badly at night should be given a warm bath before being put to bed. Great care must be taken to thoroughly dry the child after bathing, and all folds of the skin, such as the groins, armpits, etc., should be powdered. Cheap coarse soap must not be used.

A baby's *clothes* should be light, warm, and loose; even the binder should not be put on tightly. The arms and legs should be protected as well as the body, as cold arms and legs are a common cause of indigestion. The *diapers* should be made of Turkish towelling and should be changed as often as necessary, otherwise redness and irritation of the parts will result.

Sleep.—Until five or six years of age the child should sleep for twelve hours at night, in addition to the sleep obtained during the day. *Comforters* should *never* be used. When sucking these the child generally swallows a good deal of air, which later on causes the stomach to be upset. Comforters are also a frequent cause of projecting front teeth later on in life.

Feeding.—Every mother, who is able to do so, should suckle her infant. The infant should be fed every one and a half hours during the first week in the daytime. The last meal should be given about 11 p.m. During the night there should be as little feeding as possible, one or, at most, two meals being the limit. During the second, third, and fourth weeks meals should be every two hours. During the fifth, sixth, seventh, and eighth weeks every two and a half hours, and during the third, fourth, and fifth months every three hours. After this there should be an interval of four hours.

Artificial feeding.—The best artificial food is "Humanised milk." This, however, is expensive, and ordinary cow's milk in some form or another has to be used. For the first month or six weeks the following mixture may be used:

Cow's milk, 1 part ;
Barley water, 1 part ;
Boiled water, 1 part.

Sweeten with sugar and add half a teaspoonful of cream or unboiled white of egg or raw meat juice.

A little suet placed in a muslin bag and heated in the milk can take the place of the cream when the expense of using cream cannot be afforded. A certain amount of the suet melts and passes out of the bag and into the milk.

If the baby has diarrhœa, use "lime water" in place of the barley water. After six weeks, more milk and less barley water may be used. Increasing the milk must be done *gradually*.

Condensed milk agrees well with some babies, *but must not be used for long periods.*

The temperature of the food should be 98° F. The important points to be remembered in the feeding of infants are :

1. All changes in the food must be made gradually.
2. All meals must be given punctually, and not just when the baby cries.
3. Use a "slipper bottle," and not one with a long rubber tube.
4. Keep the bottle scrupulously clean.
5. Hold the bottle *all* the while the child is feeding.
6. Starchy foods should not be given until the child is six months old.
7. Start feeding with a spoon when the child is

six or seven months old if the child is not being suckled.

8. Wean breast-fed children at nine months.

As to the *quantity* of food for each meal, it is important to remember that the stomach of a baby a few days old will only hold about one ounce of fluid. The following table compiled by Drs. Goodhart and Starr can be used *as a guide*, but should not be rigidly adhered to.

Age.	Quantity.	Number of meals in the 24 hours.
1 week	1 ounce	10
2 weeks	1½ ounces	10
3 and 4 weeks	2 ,,	10
5 and 6 ,,	3 ,,	8
7 and 8 ,,	4 ,,	8
3, 4, and 5 months	5 ,,	7
6 months and onwards	6 to 7 ,,	6

When the child is nine or ten months old, a little animal food, such as a lightly boiled egg, may be given, and, if this agrees with the child, a little gravy or mutton broth may be tried. When the child is sixteen months old, a little minced fowl or fish may be given, and when

two years of age the same may be given without being minced, and a little vegetable may be added.

As the child gets older and more solid food is taken, he must be carefully trained to thoroughly masticate his food (*see also* "Personal Hygiene," p. 133).

NURSING SICK CHILDREN

Great tact and gentleness and much patience are required in the nursing of sick children, and more especially is this the case with children who have been petted and spoilt. The doctor is often threatened as a sort of punishment to children, and thus they come to look upon him as a personal enemy instead of the friend he really is.

The first thing a strange nurse has to do is to gain the confidence of the little invalid, and this often requires tact and patience. She should try to find out from the friends, before entering the sick-room, the peculiar hobby of the child. She will then have some subject with which she may interest and make friends with the patient, and this is more than half the battle.

If the patient is obstinate and fights against taking any medicine ordered, the doctor should be informed, and his wishes ascertained. If it is essential that the medicine should be taken, the nurse must be firm, and the child may have to be held whilst the medicine is administered. This is not, however, often necessary, as quite young children very seldom struggle much

against the taking of what has been ordered, and older children can generally be shamed into taking it. When necessary, however, the child should be laid across the nurse's lap, the head held firmly by another person, and the hands and feet by a third, while the nurse pours the medicine into the mouth, and holds the nostrils closed until swallowed. It will seldom be necessary to repeat these measures.

Never deceive a child, as children are quick in discovering deception, and, not being hardened to the falsehoods and insincerities of everyday life, resent it. Observation, as already stated, is of more importance in the case of children than of adults, as they are incapable of expressing their sensations intelligently. The character of the *cry* often gives much information, and one cannot do better than quote the following description by Dr. Eustace Smith: "A hungry infant in most cases clenches his hands and flexes his limbs as he utters his complaints, and continues until satisfied. If tortured by colicky pains, the cry is violent, paroxysmal, and accompanied by uneasy movements of the body. A shrill scream uttered at intervals, the child lying in a drowsy state with closed eyes, is suggestive of tubercular meningitis. A constant unappeasable screaming is often the consequence of earache, and the child frequently presses the side of the head against the mother's breast. The pain of pleurisy will also cause violent crying. Absence of crying often indicates exhaustion or serious illness." It will be seen that much can be learnt from a child's cry.

TEMPERATURE, ETC.

The temperature should be taken either in the armpit or groin. The *pulse* and *respiration* are best taken while the child is sleeping.

CONVULSIONS

The doctor should be summoned. The child's clothes should be loosened, and he should be placed in a hot bath (100° F.), with the water up to the waist. Sponge the head with cold water. Always test the heat of the bath either with a bath thermometer or your naked elbow before putting the child in.

The thermometer must be read whilst it is *in* the water. The child may be kept in the bath for ten to fifteen minutes, and should then be wrapped in a blanket and put to bed.

DIARRHŒA

1. *Infants.*—Diarrhœa in infants is almost, but not entirely, confined to those fed by bottle. It occurs with great frequency in hot weather, and is often fatal; medical advice should therefore be obtained *at once.*

The commonest cause is improper feeding, and more especially the use of tainted milk. Milk often appears to be fresh when really it is just on the point of turning sour. The use of such milk is dangerous. Milk in which flies have settled is also dangerous.

Milk in hot weather should be "Pasteurised" (*see*

p. 104) and kept covered up and not exposed to the air. Lime water should be added to each feed. Soiled napkins must be at once changed, and should then be disinfected or boiled.

2. *Children.*—Generally due to improper feeding or to a chill. Generally occurs during the fruit season. Fruit when eaten should be *quite* fresh. Medical advice should be obtained if the diarrhœa is persistent. The child should be given *cold* boiled milk, cold arrow-root or cornflour. Rice water is also useful. Nothing warm should be given. Beef-tea is not to be used, but later on mutton-broth may be given. The body should be kept warm.

THRUSH

Most commonly affects infants, but is sometimes seen in older children. The tongue, insides of the cheeks, and the gums are dotted over with small white patches. Each patch has a small red circle round it. The child generally has indigestion and often diarrhœa with green motions. The chief causes are improper feeding and the use of dirty feeding-bottles. The mouth should be wiped out after and before each feed with a *clean* rag dipped in warm boracic lotion. A little glycerine and borax should then be put in the mouth. The feeding-bottle and the rubber teat should be soaked in boracic lotion between the feeds, and the bottle washed out with cold *boiled* water before the next meal is put into it.

RICKETS

This disease generally first appears between the ages of six months and two years.

It is more common in the poorer districts of large towns than in the country. It is caused by improper feeding, and especially by over-indulgence in starchy food and deprivation of fatty foods. Some mothers suckle their infants for twelve or even eighteen months instead of weaning them when nine months old. This prolonged feeding by the breast is a frequent cause of rickets. The use of patent foods in the early months of life is also a cause. Unhealthy surroundings, with impure air, absence of sunshine and bad ventilation, are other factors in the production of this disease.

Symptoms.—Restlessness, perspiration when asleep, swelling of the abdomen, enlarged ends of bones, especially at the wrists and ankles; delay in the cutting of the teeth, and the early decay after they are cut. Later on, the bones, being soft, bend and get deformed, especially those of the legs of children who are old enough to walk about.

Chief complications.—Convulsions and diarrhœa.

Treatment.—Medical advice should be obtained. Good milk, from which the cream has not been removed, should be given, together with raw meat juice. For older children, bacon, fish, eggs, cream, and minced meats. Abundance of fresh air and sunshine and open windows at night. Warm light clothing. Cod-liver oil internally. The patient should wear a flannel

nightdress, long enough to come well down below the legs; this should be fastened by tying below the feet, to prevent it being kicked up when asleep. A morning bath (85° F.) should be given daily. Young children should be prevented from walking, so that the legs may not become deformed.

INFLAMED EYES

Inflammation of the eyes, with redness of the lids and a sticky discharge coming on two or three days after birth, is a serious condition, and medical advice should be obtained *at once*, otherwise the child's eyesight may be destroyed.

CONSTIPATION

1. *Infants.*—Constipation should not be allowed to go on unchecked. Medical advice should be obtained. The following change in the diet may be tried. Sweeten the feeds with manna. Give the child extra cream and ten drops of cod-liver oil once or twice a day. Increase the amount of barley water, and add a little bicarbonate of soda to the bottle.

2. *Children.*—A child's bowels should be opened *every* day, and the habit of missing should not be allowed to go on unchecked. The child should be made to go to the closet at the *same* hour every day. The best time is just after breakfast.

The use of porridge, sweetened with coarse brown sugar, and the inclusion of baked apples, stewed prunes,

and figs for breakfast, and the substitution of wholemeal bread for the ordinary white bread will often overcome constipation.

The amount of fats should also be increased, extra cream, butter, dripping, fat bacon, etc., being given. Green vegetables and a small dose of cod-liver oil and a glass of water the last thing at night are often of great use.

DISCHARGES FROM THE EARS

Earache is common in children. The chief causes are sore throats, indigestion, chills, teething, and certain fevers, such as scarlet fever, influenza, etc., and adenoids.

The pain is severe, and often lasts a long time, with periods of severity alternating with periods of comparative relief. Often the attack ends, more or less suddenly, with a discharge from the ear (*running ear*). Sometimes it passes off without any discharge, and occasionally the ear discharges without a previous attack of pain. A "running ear" is serious, and medical advice should be obtained *at once.*

For the relief of pain.—Hot applications, such as flannel wrung out in hot water or a bran bag heated in the oven are the best remedies. Warm oil dropped into the ear is also useful. An aperient should be given.

For the discharge. The ear will have to be syringed out with warm lotion ordered by the doctor.

A running ear must never be neglected.

SORE THROAT

Sore throats are extremely common in children, and may be the result of a chill, breathing impure air, drinking impure water, or may be the commencement of serious trouble, such as diphtheria or scarlet fever. It is important not to neglect a sore throat, as it may be, as already stated, the beginning of diphtheria or scarlet fever. Medical advice should be obtained.

ADENOIDS

These are small swellings at the back of the nose and behind the soft palate. The *tonsils* are generally enlarged at the same time. The swellings prevent the child from breathing through the nose, and he therefore keeps his mouth partly opened during the day and night. One of the commonest symptoms is *snoring at night.* Frequent colds, snuffling, and slight deafness are other common symptoms.

Medical advice should be obtained and the case should not be neglected.

RHEUMATISM

This is an important disease, as it often occurs in a very mild form and is consequently often neglected. It must be remembered that all forms of rheumatism, whether severe or mild, are very liable to affect the heart. When a child complains of indefinite pains, and shows a disinclination to run about and play,

and especially when there is the slightest tendency to shortness of breath, a doctor should be consulted.

The so-called *growing pains* are often a mild form of rheumatism, and should *never* be neglected, as growing itself *never* produces pain.

In severe rheumatism the patient is feverish, and has one or more joints swollen and extremely tender. There is generally also a good deal of sweating. The patient should be put to bed *between blankets* and wearing a flannel night-dress, and a doctor sent for. All fruit and meat should be knocked off.

CHOREA (ST. VITUS'S DANCE)

This is more common in girls than boys, but is of frequent occurrence in both. It is sometimes produced by mental excitement, fright, and pressure of school work, but is generally connected with rheumatism.

Symptoms.—Jerky movements of the limbs; twitchings of the face and mouth; dropping things from the hands.

The symptoms are generally more marked when the child is being watched. The jerky movements are generally well seen when the child holds both arms to their full extent in front of her and with her fingers opened out from one another.

Mothers are apt to scold the child for being "clumsy." They should refrain from doing so.

Treatment.—The child should be taken from school

and all lessons, and should be placed under medical treatment.

HEADACHES

A child who is constantly complaining of headache should be taken to the doctor. Persistent headache, especially when at school or when reading or sewing, is often due to *defective eyesight*, and can only be cured by the child wearing suitable glasses, which should *always* be ordered by a doctor.

RINGWORM

Ringworm is due to the growth of a vegetable fungus at the roots of the hair. The first signs are the appearance of one or more circular patches of roughened skin. The hair over these patches is thinned, and on close inspection several of the hairs are seen to be short, broken stumps. The patches increase in size, and the skin, in the centre, instead of being rough and scurfy, becomes smooth.

Ringworm is very infectious, and spreads from one child to another rapidly.

Treatment.—Medical advice must be obtained *at once*, and the doctor's orders carried out thoroughly and persistently. The child must be kept from other children, and separate hair-brushes, combs, and towels must be used. A washable linen skull-cap should be worn. This should be lined with thin paper, which is renewed every day. The old lining should be at once

burnt. The child must not go to school. The hair-brush and comb should be frequently disinfected by being soaked in 1 in 40 sanitas or carbolic acid.

FALSE CROUP

This generally occurs in children who are cutting their teeth, and usually comes on in the early hours of the night, the child having been apparently quite well when he went to bed. He wakes up suddenly choking. Sometimes he starts up in bed; at others, he becomes stiff. After a minute or so the spasm passes off, and a deep breath is taken with a crowing noise or whoop. This disease is often associated with rickets.

Treatment.—A sponge wrung out in hot water should be applied to the front of the throat. Test the heat of the sponge with the back of your hand before applying it. Making the child sick with ipecacuanha wine is useful.

LATERAL CURVATURE OF THE SPINE

This is more common in girls, as their muscles are not so strongly developed as those of boys.

Symptoms.—One of the shoulder-blades projects out, and one shoulder is higher than the other. The child often feels out of sorts. Later on the chest becomes contracted, and the health may be permanently injured. This condition of the spine is often produced by sitting or standing in bad positions.

Treatment.—Medical advice should be obtained, as the child will have to go through a course of exercises, and her general health needs building up. Bad positions in standing and sitting should be *constantly* checked. The child should be made to lie down flat on her back for about twenty minutes in the middle of the day.

PRACTICAL WORK

Repetition of rolling bandaging. Reading clinical thermometer and charting temperatures.

Questions on Chapter VI

1. *Why are infants less likely to take colds, if properly clothed, than adults?* (p. 82).
2. *How do you accustom a child to cold baths?* (p. 83).
3. *How often should a baby be bathed, and what temperature should the bath be?* (p. 83).
4. *Why should "comforters" never be used?* (p. 84).
5. *What is the best way of feeding a baby?* (p. 84).
6. *How would you feed a baby artificially?* (p. 84).
7. *What should be the temperature of a baby's bottle?* (p. 85).
8. *What are the important points to be observed in infant feeding?* (p. 85).
9. *What would you do if a child refused to take his medicine?* (p. 87).

10. *How would you take a child's temperature, pulse, and respiration?* (p. 89).
11. *What would you do for a child in convulsions?* (p. 89).
12. *What is the cause of thrush, and what would you do for a case?* (p. 90).
13. *What are the signs of rickets?* (p. 91).
14. *How would you feed a rickety child?* (p. 91).
15. *How would you try to overcome constipation?* (p. 92).
16. *How would you try to relieve earache?* (p. 93).
17. *What would lead you to suppose a child had adenoids?* (p. 94).
18. *Why is it important not to neglect mild forms of rheumatism?* (p. 94).
19. *What are "growing pains"?* (p. 95).
20. *Why is it important not to neglect headaches?* (p. 96).
21. *What would you do for an attack of false croup?* (p. 97).
22. *What kind of bed would you prepare for a case of severe rheumatism?* (p. 95).

CHAPTER VII

Note to lecturers.—Demonstrate the action of saliva on starch by heating the two in a test-tube and later testing for sugar. Demonstrate the passage of glucose through a parchment bag suspended in water.

DIGESTION

WASTE is continually going on in the body, and to make this good, food has to be taken; but most foods are incapable of entering the circulation, and must therefore undergo certain changes whereby they are enabled to pass through the walls of the digestive organs and into the blood which conveys them to the many tissues of the body. The process which brings about these changes is known as digestion. Digestion is therefore the process by which food is so altered that it is capable of passing through living animal membrane. In certain illnesses and in all that are attended by a high temperature the digestive organs are disturbed and are unable to carry out their duties as in health. It is therefore necessary that the diet of a sick person should be altered. Only food that is easily digested is given, and the doctor's instructions as to diet must be carried out strictly. In certain diseases of the stomach, in enteric fever, in certain kidney diseases, and in diabetes, etc., it is *absolutely imperative* that the

medical directions as to food for the patient should be strictly followed. Not only may the patient's recovery be delayed, but actual death may result from disobedience in this respect.

CLASSES OF FOODS

Foods are divided into five classes, and are digested by the five digestive juices. These classes are :—

1. **Proteids.**—These are foods containing nitrogen, and are, therefore, sometimes called *nitrogenous.*

Examples.—Meat, albumen, certain vegetables, fish, etc.

2. **Carbohydrates** (*starches*).—Such as starch, flour, rice, sugar, etc.

3. **Hydrocarbons** (*fats*).—Such as fat, butter, cream, oil, suet, etc.

4. **Salines.**—Such as table salt, the salts of vegetables, meats, etc.

5. **Water.**

The *proteids* are the real tissue formers, and are required for the growth and nutrition of the body tissues.

The *carbohydrates* are required for the production of heat and muscular and mental force.

The *hydrocarbons* are required for the supply of the body heat.

The *salines* are needed for the growth and nutrition of all parts of the body.

The *water* acts as a general solvent, and replaces water that is thrown off by the body. Nearly 60 per cent. of the weight of the body is made up of water, and the loss of water is constant. A part of this loss is made good by the moisture in the food we eat ; the remainder, about 2½ pints, is made good by drinking. If sufficient water is not taken, constipation is liable to occur. Articles of food contain these elements in various proportions. A dinner of bread and cheese with an onion contains all the elements requisite for a meal. A man doing moderate work requires every day about 24 oz. of water-free food ; of this 4½ oz. should be proteids, 14½ oz. carbohydrates, and the remaining 5 oz. fats and salines.

The following is the diet scale for an adult male at one of the large London Hospitals.

Breakfast.—1 pint of tea with milk and sugar, ½ oz. of butter, bread.

Dinner.—6 oz. of cooked meat, 8 oz. of potatoes, 4 oz. of pudding, bread.

Tea.—1 pint of tea, butter ½ oz., bread.

Supper.—Bread and butter.

Eighteen ounces of bread are allowed in the twenty-four hours.

PROCESS OF DIGESTION

Food is taken in at the mouth, where it should be thoroughly masticated and mixed with the first of the digestive juices, *the saliva.* The saliva converts the

starchy portion of the food into a form of sugar. If much fluid is drunk whilst eating, the saliva does not flow readily, and the food is simply moistened by the fluid taken, and the starchy food is passed on unacted upon by the saliva. This is *one* reason why people who bolt their food suffer from indigestion. Another reason is that the food when eaten hurriedly is not divided into small portions by proper mastication, and the digestive juices cannot digest large pieces of food.

After mastication the food is moved on past the tonsils, which pour out a thick oily fluid which lubricates the food and so allows of it easily passing through the gullet. On leaving the gullet the food enters the stomach, where it meets with the second digestive juice, *the gastric juice.*

The gastric juice attacks the proteids and turns them into soluble *peptones.* After staying a varying length of time in the stomach, the food passes on into the bowels, where it comes into contact with the following juices, *the bile and the pancreatic juice.* The bile dissolves the fats and turns them into an emulsion. The pancreatic juice turns fats into glycerine and fatty acids, proteids into peptones, and starches into sugar. The food then passes on down the bowel, and meets with the fifth and last of the digestive juices, *the succus entericus* or intestinal juice, which acts as a sort of scavenger, and does its best to digest any of the food that may have escaped digestion higher up.

ABSORPTION

Sugar, and starches when converted into sugar, and proteids when converted into peptones, pass direct into the blood-stream. Emulsified fats, fatty acids, and glycerine pass, *as chyle*, into vessels called *lacteals*. The lacteals empty themselves into the veins at the root of the neck. The table opposite may help students to master the subject of digestion more easily.

The diet should be a varied or mixed one, as such is better digested.

MILK

Contains all the elements necessary for a complete diet in the proper proportions, and is a perfect and the best food for infants. It is a very useful food in cases of serious illness, as it is easily digested and can be served up in many different ways without much preparation. It should always be kept covered up in a cool place, and never left exposed to the air or in a warm place. Flies should never be allowed to settle in it.

PASTEURISATION OF MILK

To "*pasteurise*" milk it must be kept at a temperature of 158° F. (70° centigrade) for twenty to thirty minutes. This kills the germs that cause *tuberculosis* (*consumption*) and *enteric fever*. It will not kill the germs of other diseases. Pasteurised milk will not keep sweet for more than a day or two.

DIGESTION TABLE

Class of Food.	Examples.	Uses.	Digested by	Where Digested.	Absorbed by
Proteids . .	Meats, albumen, fish, poultry, vegetables	To repair wear and tear	1. The gastric juice 2. Pancreatic juice 3. Succus entericus	1. Stomach 2. Bowels	Blood capillaries Slowly and incompletely
Carbohydrates	Starch, bread, potatoes, rice, sugar	For body heat and nervous and muscular energy	Starches: 1. Saliva 2. Pancreatic } Juice 3. Intestinal } Juice	Starches: 1. Mouth 2. Bowels	Blood capillaries
			Sugar: 1. Gastric mucus 2. Liver	Sugar: 1. Stomach 2. Liver	Blood capillaries Portions stored up in the liver and muscles
Hydrocarbons	Fats, butter, oil, cream, suet, yolk of eggs	For body heat	1. Bile 2. Pancreatic juice 3. Succus entericus	Bowels	Lacteal vessels
Salts . .	Table, vegetable, and animal salts	For growth and nutrition of all parts	Dissolved by saliva and gastric juice	Absorbed in: 1. Stomach 2. Mouth 3. Bowels	Blood capillaries
Water . .	Water	To dilute foods, aid absorption, and to replace lost water	Needs no digestion	Absorbed in 1. Stomach 2. Mouth 3. Bowels	Blood capillaries

A rough and ready method of pasteurising milk is to place it in a covered jar or clean bottle and put it in a saucepan of boiling water on the fire for about thirty minutes. Then take the jug or bottle out and place it in a basin of cold water. Keep it covered up till used.

Boiling milk kills *all* germs, but at the same time makes it less digestible, more constipating, and of less value as a food.

CONDENSED MILK

Condensed milk keeps better than fresh milk. It is prepared in a *sweetened* and *unsweetened* form. The latter is the preferable preparation, and may be used sometimes with advantage for *short periods*, but never for a prolonged one. The brand used must be a good one.

COOKING

Man is the only animal that cooks his food. Cooking improves the flavour and increases the digestibility of most foods, and has the further advantage that it kills germs. Food taken warm promotes the action of the digestive juices.

All nurses should know how to cook, as, in cases of illness, it is very necessary that the patient's food should be *properly* cooked, and no one is able to say whether this is so or not who does not thoroughly understand cooking. The nurse must also know how to serve up food daintily.

BOILING

This is one of the simplest means of preparing animal food.

If it be required to retain the soluble constituents as much as possible in the meat, it should be put into water that is already *boiling*, and it should be kept boiling for at least five minutes after the meat is put in. The albuminous matter is thus congealed, and forms a protective layer to retain the juices. The cooking is completed at a temperature of about 160° F.

If it be required to extract the soluble constituents, the meat should be cut up into small pieces and put into *cold* water. The temperature is then gradually raised to about 160° F.

Soups should be boiled. Broths should not be boiled. Chickens make the strongest broth, then comes mutton, and lastly beef.

ROASTING

To retain the juices, expose the joint at once to a strong heat, and then reduce the temperature by moving the joint farther from the fire.

Continual basting is important; or the joint may be cooked in a paper cooking bag.

STEWING

Cut the meat up into moderately small pieces, and place in a saucepan and just cover with water. Allow

it to simmer, but not to boil. Flavourings and sliced vegetables should be added.

GRILLING

This is more rapid than roasting. The same principles apply.

BAKING

Roasting is to be preferred for invalids.

FRYING

As the food becomes more or less saturated with the fat used it is not digestible.

FISH

Should be boiled or grilled. Boiling is the better method for invalids.

POTATOES

Steam or boil in their skins.

EGGS

These may be prepared in many ways. The following is the order of digestibility: raw, scrambled, poached, lightly boiled, hard boiled, fried.

N.B.—Just as "fear of dirt is the beginning of good nursing," so it is the beginning of good cooking.

GENERAL PRINCIPLES

1. Serve up daintily.
2. Take up too little rather than too much to the patient.
3. Never let the patient know what he is going to have.
4. Have something always ready prepared.
5. No cooking to be done in the sick-room.
6. All food to be taken out of the sick-room as soon as the meal is finished.
7. All cooking utensils to be kept scrupulously clean.
8. Use a feeding-cup when necessary.
9. Do not stop a patient in the middle of a drink.

ALCOHOL

The question of the use of alcohol is a vexed one, and much has been written on the subject. There is no doubt that young people are better without it. Most adults are also better without it. On the other hand alcohol is a useful stimulant in certain cases of illness. It should be given by, and according to, the orders of the doctor. Old people sometimes need a little with their meals, but every young person who takes alcohol should remember that he is laying the foundation of a habit that it will be difficult to break from, and one that is very likely to go on increasing. "Prudence, then, counsels what knowledge recommends, that is, to abstain from what is not a useful friend, and what may, moreover, easily become a deadly enemy."

TEA, COFFEE, AND COCOA

Tea freshly made and in moderation is an agreeable, refreshing, and wholesome drink. If taken strong and in excess it is injurious. It should not be taken immediately after eating meat, as the tannin it contains makes meat indigestible.

Coffee is also an agreeable beverage. It should be made from freshly ground and freshly roasted seeds. Like tea it acts as a stimulant. If taken with half milk it is nutritious. Coffee is a useful antidote in alcohol poisoning, and this is probably the origin of taking it after dinner.

Strong black coffee after a meal is not good for digestion.

Cocoa is pleasant and nourishing.

JELLIES

Jellies are useful in fever to prevent tissue waste.

INDIGESTION

The most common causes of indigestion are insufficient mastication, taking food too hot or too cold, too rich and indigestible food, irregularity of meal times, bad teeth, neglecting to take a short rest before and after meals, eating heartily when tired, wearing tight belts and stays, cold feet, badly cooked and badly prepared food, and drinking freely at meals.

Symptoms.—These vary very much. The commonest

are pain at the pit of the stomach and under the left shoulder-blade, coming on in connection with the taking of food, headache, vomiting, and constipation or diarrhœa.

Chief nursing points.—Try to find out what brings on the pain. Note when the pain comes, how long after or before meals, how long it lasts, whether it is relieved by being sick. See that the meals are taken at *regular* intervals, that the food is eaten slowly and well masticated.

VOMITING BLOOD

Vomited blood is usually dark in colour and often mixed with food. It may resemble coffee grounds. It is often preceded by pain and faintness.

Medical assistance should be obtained. The patient should be kept absolutely quiet and lying down with his head and shoulders slightly raised. A little ice or iced water may be given, but nothing else. The patient may have to be fed by nutrient enemata.

NUTRIENT ENEMATA

Nutrient enemata are for feeding the patient by the bowel. The lower bowel should be washed out first with a simple enema of warm water. The nutrient enema is best given by means of a ball syringe. These rubber ball syringes are made in sizes to contain the exact amount of food to be administered. The syringe is filled *quite full* so that there is no air remaining in it.

The nozzle is oiled, and gently inserted into the lower bowel. The ball is then *slowly* squeezed until empty. A napkin should be held to the part for a short time after the nozzle is withdrawn. The patient should lie quietly afterwards, and be encouraged to retain the injection. The syringe should be thoroughly cleaned after use.

The food generally consists of eggs beaten up in milk or broth, and with or without a certain amount of stimulant. The doctor will give the necessary directions. From two to eight ounces are given, the usual quantity being four ounces.

Diarrhœa and *constipation* are described on pp. 89-92.

PRACTICAL WORK

Repetition of bandaging, bed-making, etc.

Questions on Chapter VII

1. *What is the object of digestion?* (p. 100).
2. *Why has the diet often to be changed during illness?* (p. 100).
3. *What are the different classes of food?* (p. 101).
4. *Describe shortly the process of digestion* (p. 102).
5. *How is milk pasteurised?* (p. 104).
6. *Why should milk always be kept covered up?* (p. 104).
7. *May condensed milk be used?* (p. 106).

8. *What are the general principles for feeding patients?* (p. 109).
9. *Why should tea not be taken with meat?* (p. 110).
10. *What are the chief causes of indigestion?* (p. 110).
11. *What would you do for a patient who vomited blood?* (p. 111).
12. *What is a nutrient enema, and how is it given?* (p. 111).
13. *What are the general principles to be observed in serving up meals for a patient?* (p. 109).
14. *Why is milk a perfect food?* (p. 104).

CHAPTER VIII

Note to lecturer.—Much in this chapter is outside the usual syllabus of Home Nursing lectures, and should be omitted if time is limited.

COMMON ILLNESSES AND SURGICAL NURSING

BRONCHITIS

INFLAMMATION of the lining membrane of parts of the air-tubes. Generally caused by a chill.

Symptoms.—Cough, expectoration, tightness of the chest, difficulty in breathing, raised temperature. The phlegm is usually white and frothy at first, later on it is thick and yellow and occasionally streaked with blood.

An attack generally lasts a week or two or longer.

Chief nursing points.—The sick-room must be kept at an even temperature of about 65° F. and well ventilated without draughts. The head and shoulders should be kept well raised, and the bedclothes must not be too heavy on the chest. The atmosphere may have to be kept moist with steam, in which case a "*bronchitis kettle*" should be used.

It is important that the supply of steam should be constant, and that the kettle is so arranged that there is no dripping on to the bedclothes. The quantity and character of the sputum should be noted, and a specimen

saved for the doctor's inspection. A proper spittoon should be used. The character and frequency of the cough and any lividity or blueness of the face and lips should be observed, and also any increased difficulty in breathing.

The effect of remedies used should be noted.

The chest is generally kept covered with a layer of cotton wool; this takes the place of the old-fashioned poultices. The doctor will give directions.

Chills must be avoided during convalescence.

ASTHMA

This is a spasmodic affection of the air-passages.

Symptoms.—The attack often comes on late at night or in the early morning, but may occur at any time. There is a feeling of constriction round the chest, and the breathing is laboured and difficult. The patient often has to sit up in bed and fight for his breath. There is much wheezing. There may be some cough, and if phlegm is brought up the patient generally gets ease.

Chief nursing points.—The effect of remedies used must be noticed. What brings the attack on; it may be the taking of some article of food, and this should be noted.

PNEUMONIA

This is an acute inflammation of the lungs. Usually it is limited to one lung, but may affect both.

Symptoms.—The invasion is sudden, and is often

accompanied by a rigor (or a convulsion in children). The temperature goes up rapidly. The patient complains of headache, and has loss of appetite. The respirations become rapid, the face becomes flushed, and the nostrils dilate on inspiration. Cough rapidly develops, with severe pain over one or other lung. The sputum is generally of a rusty iron colour. There is often delirium at night. The attack ends by "*crisis*" on about the eighth day (earlier in children), and is usually accompanied by profuse perspiration.

Chief nursing points.—The room should be kept at an even temperature of about 65° F. It should be well ventilated without draughts. A *pneumonia jacket* is generally used. This is made by cutting out a sheet of wool to fit all round the chest. The wool is quilted on to a piece of thin muslin, and is generally made to open down one side which has tape-string fastenings. The pulse, respiration, and temperature must be carefully charted. The quantity and character of the sputum should be noted, and a specimen saved for the doctor to see. The doctor's orders as to stimulants must be strictly observed. The nurse must be prepared for delirium at night, and extra assistance may be required. The amount of sleep and its character must be noted. The patient is often very thirsty, and there is no objection to his drinking freely.

TUBERCULOSIS (CONSUMPTION)

Tuberculosis in one form or another is responsible for more deaths than any other single disease.

It is an infectious disease, caused by the presence of germs, called *Tubercle bacilli*. These germs may affect different parts of the body, such as the lungs (consumption), the joints (especially the hip and knee), the bones (especially the vertebræ), the coverings of the brain (tubercular meningitis), and the glands (especially those of the neck).

Tubercle germs are constantly being taken into our bodies, but so long as we are strong and well the germs do not flourish ; but if we are in a poor state of health, they are very liable to take root and multiply. It is therefore very important to do all we can to keep in such a state of health that the germs are unable to live and thrive in our bodies. If the state of health is feeble, as the result of poor living, over-work, unhealthy surroundings, excess of drink, or as the result of some previous illness, the germs may thrive and multiply.

No one is *born* with consumption, but a child may be born with a *tendency* to the disease, and it is important to remember that this tendency may often be overcome by strict attention to the ordinary rules of health. Children of consumptive parents require every attention during the early years of their lives.

The germs are spread by the sputum and other discharges from the patient. *So long as the sputum and discharges remain moist there is no danger of the germs spreading.* It is therefore important that these should be disinfected or burnt *at once*, before they get dry. The phlegm of a consumptive patient should never be received on to a handkerchief, but on to pieces of rags,

which should be burnt immediately, or a suitable spittoon, containing a solution of 1 in 20 carbolic acid or sanitas, should be used. The expectoration in the spittoon is to be burnt.

The consumptive must never spit on to the ground, as the sputum after a time dries up and is blown about. Cows are prone to tuberculosis, and the milk from cows so affected contains the germs, and is therefore unfit for drinking until *pasteurised* or boiled.

PRECAUTIONS

Delicate children and adults, and especially those with consumptive parents, should take every means possible to improve their general state of health. Their food should be wholesome and plentiful. Fat bacon, butter, dripping, cream, etc., should form a prominent part in their diet. Cod-liver oil is also useful, and this can often be given to children, without their knowing it, by pouring it over sardines.

Abundance of pure milk, pasteurised for safety's sake, fresh air, and sunshine are also necessary. Warm light clothing and avoidance of chills, late hours, excessive smoking and drinking, are other essentials. A "cold" should never be neglected.

The bedroom windows should be kept open day and night. Healthy outdoor occupations are to be preferred to ones necessitating confinement indoors. Such people should, if possible, live on a dry, well-drained soil.

People actually suffering from the disease should sleep by themselves, and should not mix with other people in hot, crowded rooms. Clothes and bed-linen soiled by phlegm, etc., should be boiled at home. Patients should never swallow their phlegm, as by doing so the germs are conveyed to the digestive organs and may set up the disease in them.

PLEURISY

This is inflammation of the covering membrane of the lungs. The commonest cause is a chill. It may also come on during or after an attack of pneumonia, scarlet fever, etc.

Symptoms.—The temperature goes up, and there is acute pain in the chest and a short, sharp cough. In those cases that go on to the formation of fluid the pain subsides, and there is increasing difficulty in breathing. The patient then usually lies on the affected side

Chief nursing points.—The patient should be confined to bed in a room with an even temperature of about 60° F. The temperature, pulse, and respiration must be carefully charted. Increasing difficulty in breathing, and the occurrence of lividity or blueness should be noted and reported, and the patient kept lying still until the doctor arrives. The occurrence of rigors must also be looked out for and reported.

BLOOD-SPITTING (HÆMOPTYSIS)

This is frequently seen in consumption. The blood is bright red, and is generally frothy, being mixed with the air in the lungs, and is coughed up.

The quantity of blood lost may vary from a few drops to a pint or more. The patient often feels faint, and becomes pale and restless before the blood is coughed up.

Chief nursing points.—All tight clothing should be loosened. The patient must be kept lying down, with his head and shoulders raised. Ice should be sucked, and an ice bag may be placed at the top of both lungs in the front of the chest. Stimulants and hot drinks must be avoided, and the room should be kept well ventilated. Save the blood for the doctor to see.

HEART DISEASES

Heart disease is very common after rheumatism and scarlet fever. It affects the valves of the heart, and more commonly the valve between the left auricle and ventricle (mitral valve) or the valve at the opening into the aorta (aortic valve).

Symptoms.—These vary considerably. The commonest are shortness of breath, especially on exertion, palpitation, faintness, irregular action of the heart.

Chief complications.—Swelling of the legs, bronchitis, congestion of the lungs.

Chief nursing points.—In those cases bad enough to be

confined to bed, the patient should be supported in the position he finds most comfortable. Excitement and sudden movements must be avoided. Regular action of the bowels should be secured. The occurrence of cough and increasing difficulty in breathing, increasing lividity, and increasing swelling of the legs must be noted and reported. The quantity of urine passed should be charted.

DROPSY

This is an accumulation of fluid beneath the skin or in the cavities of the chest and abdomen. It may be the result of heart or kidney disease. Dropsy beneath the skin is generally first observed in the lower extremities and just beneath the eyes. The swelling is more or less soft, and may be pitted by steady pressure with the finger.

Chief nursing points.—The patient has generally to be confined to bed. The action of the bowels, skin, and kidneys should be noted and reported on. The quantity and colour of the urine passed must be noticed. The doctor's orders as to diet must be carefully followed. Barley water is a very useful drink for these patients. Chills must be avoided. If the patient perspires much, he should be placed between blankets. The slightest tendency to twitching of the muscles or increasing drowsiness must be at once reported. A steam or vapour bath may be ordered by the doctor.

DIABETES

This is a disease characterised by the presence of sugar in the water.

Symptoms.—The onset is gradual. The patient has increasing thirst, and generally the appetite is excessive. There is an increase in the quantity of water passed. The patient later complains of weakness and of soon getting tired.

Chief complications.—Unconsciousness, whitlows, sciatica, mortification of toes, etc.

Chief nursing points.—The doctor's orders as to diet must be strictly carried out. Chills must be avoided. The state of the bowels and the quantity of urine passed must be charted. The doctor will probably require a specimen of the water from time to time, and he should be asked if he requires a mixed specimen of the twenty-four hours or an early morning one or one after a meal. The specimen should be put in a perfectly clean bottle and corked up.

Coldness and alteration in colour of the feet and legs should be reported, as should also drowsiness and twitchings. The diet generally consists of food that is free from starch and sugar. Gluten or almond bread is used instead of ordinary wheat bread.

DIABETIC DIET

Allowed :

MEATS.—All kinds: ham, bacon, kidney, sausages, sweetbread, tongue, tripe, liver excepted.

GAME, etc.—All kinds.

FISH.—All kinds except oysters.

VEGETABLES.—Asparagus,* artichokes, brocoli,* brussels sprouts,* cabbage,* celery, cress, cucumber, endive, lettuce, mushrooms, onions, radishes, sea-kale,* spinach, tomatoes, vegetable marrow,* water-cress.

FRUIT.—Rhubarb, gooseberries (when quite young), cherries,† red currants.†

MISCELLANEOUS.—Almond, bran, and gluten bread, biscuits and cakes, butter, broths, caviare, cheese, cream, eggs, isinglass, jelly (sweetened with saccharin), lemons, nuts (except chestnuts), milk (in moderation only), olives, pâté de fois gras, pickles, soups (clear), saccharin, truffles, vinegar, and oil.

BEVERAGES.—Brandy (in moderation), Burgundy, Chablis, claret, coffee, hock, koumiss (in moderation), lager beer, mineral alkaline waters, Moselle, Sauterne, sherry, tea, whisky (in moderation).

Forbidden :

MEATS.—Liver.

FISH.—Oysters.

VEGETABLES.—Beans, beetroot, carrots, parsnips, peas, potatoes, turnips.

FRUITS.—All sorts except those mentioned above.

MISCELLANEOUS.—Arrowroot, bread, cornflour, honey,

** In moderation. Should be boiled in a large quantity of water.*

† *Very occasionally.*

ices, jam, melons, maccaroni, oatmeal, puddings, rice, sago, tapioca, vermicelli, sugar.

BEVERAGES.—Ale, champagne, cider, cocoa, gin, liqueurs, milk (except in moderation), port, stout.

The above is given as a specimen. The medical attendant's instructions must be carried out strictly.

RHEUMATIC FEVER

This is a disease which affects principally the joints, and is generally caused by cold and damp.

Symptoms.—The affected joints are swollen and painful. The temperature goes up and the patient perspires freely. The disease has a great tendency to affect one joint after another.

Chief complications.—Heart disease, pleurisy, excessively high temperature.

Chief nursing points.—The patient should be confined to bed between blankets, and should be clothed in flannel. Chills must be avoided. The affected joints should be covered with cotton wool or flannel. A bed-cradle may have to be used to keep the bedclothes off the painful joints. The doctor's orders as to the patient leaving the bed for purposes of nature must be ascertained and carried out. The diet is usually a milky one. Beef tea and all sorts of meat and fruit are excluded. The occurrence of deafness and noises in the ears and faintness should be noted. The temperature and respirations must be carefully charted. The doctor should be notified at once if the temperature goes

up to 105° F. or more. Breathlessness on slight exertion should be reported. The locality and severity of the pain and the effect of remedies should be noted.

CASES OF INSENSIBILITY

There are many diseases that are accompanied by unconsciousness, and, so far as the nursing is concerned, they are all much alike.

Chief nursing points.—The patient must be kept absolutely quiet and sometimes in a darkened room. The body must be kept warm, but the head is generally kept cool. The nurse must note any signs of twitching or convulsions. If the patient is sick, as he sometimes is on returning to consciousness, his head and shoulders should be slightly raised and his head turned on one side. The temperature may have to be taken on *both* sides of the body. The action of the bowels and kidneys should be charted.

BURNS AND SCALDS

The two chief dangers in all cases of extensive burns or scalds are shock and, later on, the occurrence of blood-poisoning. The blood-poisoning is due to the entrance of germs through the burnt surface.

The all-important things to do in these cases are to exclude the air and treat the shock. All dressings should be got ready before uncovering the burn. The clothing must be removed with great gentleness. If any is found sticking to the burnt surface, cut it all

round, and leave the part adhering until the doctor arrives.

Do not cut or break the blisters. The best application for a burn is clean linen dipped in warm boracic or picric acid lotion. After applying this, wrap the part in a thick layer of cotton wool, and put the patient to bed between blankets. In all extensive burns there is always present a certain amount of shock, and the best thing to do for this is to keep the patient warm and to give him some hot coffee to drink.

SCALDS OF THROAT

These are always serious, and medical advice should be obtained at once. In the meantime let the patient drink a little oil and suck a little ice. Sponges, wrung out in hot water, should be applied to the front of the throat. The heat of the sponge should be tested on the back of the hand before it is applied to the throat.

N.B.—*Children should never be left in a room with a fire unguarded by a suitable fireguard, as many deaths have occurred through the neglect of this precaution.*

CASES OF FRACTURE

The chief nursing points are :—a proper fracture-bed must be prepared. To do this, boards should be placed across the foot end of the bed under the mattress, and should extend from the foot to nearly the middle

of the length of the bed. Feather beds and soft mattresses must not be used.

Reception of patient.—The bedclothes should be turned back the full length along one half of the bed. Two chairs should be placed ready to rest the stretcher on. A bed-cradle to keep the clothes off the fractured part should be in readiness. Hot and cold water, nail-brush, soap, clean towels, and safety pins may be required, and an empty foot-bath for the reception of the dirty dressings. Two sand-bags should be prepared for use if wanted.

Removal of clothes, (1) *upper extremity.*—Take the uninjured arm out first ; cut up the seam of the sleeve on the injured side, and gently remove the jacket. The shirt, vest, etc., are removed in a similar manner.

2. *Lower extremity.*—The boot may have to be cut up the back seam. The outside seam of the trousers on the injured side should also be cut up. The injured limb must be firmly held with one hand above and one below the seat of the fracture whilst the clothes are being removed. If the doctor is not already present, the injured leg and thigh should be placed between sandbags after being gently washed and dried.

Precautions must be taken against bed-sores.

SURGICAL CASES AND OPERATIONS

When an operation has to be performed, preparations have to be made beforehand.

Room.—A room with a good light and with a fire-

place should be chosen. The furniture should be removed and the carpet taken up. The floor must be well scrubbed, and the walls and all paint work cleaned. The room is to be then well aired. The following will be required in the room. A table for the patient to lie on. A folded blanket, sheet, and pillow should be placed on this, and a second blanket should be ready to cover over the patient. Two small tables will also be required—one for the surgeon's instruments and one for the anæsthetics (chloroform, etc.); both should be covered with a clean towel, and a *small* basin should be placed on the one for the anæsthetics for use if the patient is sick. A clean, folded towel and a large clean white handkerchief must be ready on this table too. A washstand, with two hand basins, two *new* nail-brushes, and two pieces of soap must be prepared for the doctor and his assistant to wash their hands at. An empty foot-bath should be placed under the operating table for dirty dressings and swabs to be thrown into. Plenty of hot and cold *boiled* water, several basins of different sizes, four or five clean towels, a mackintosh sheet, and safety pins should be in readiness. If the patient is to remain in the room after the operation, a bed with draw-sheet should be prepared in one corner. It should have at least two hot-water bottles in it. The temperature of the room should be about 60° F. to 65° F.

The patient.—The doctor himself will prepare *the part* for operation, and any dressings applied by him must not be disturbed. The patient should have an

aperient the night before and an enema on the morning of the operation. A breakfast-cupful of beef-tea should be given three and a half hours before the operation. No bread or toast is to be given with it. The nurse should see that any false teeth have been removed.

The nurse must *thoroughly* clean her hands, and at least ten minutes should be spent in doing this. Afridol soap or some other suitable antiseptic soap should be used. Cuffs should be removed and the sleeves turned up. All directions given by the doctor must be strictly carried out.

AFTER THE OPERATION

The nurse will have to carefully watch the patient for some time. If sick, she must turn his head well on to one side, and wipe the vomited matter away with a clean towel. If the sickness continue, and the patient complain of the taste of the anæsthetic in his mouth, the mouth should be washed out with a little brandy and water. The patient will have to be kept quiet, and without any food for some hours. The room should be well ventilated. The nurse must watch for the occurrence of any bleeding, and the doctor should be at once summoned if this should occur.

PRACTICAL WORK

Repetition of bandaging.

Questions on Chapter VIII

1. *What temperature should the room be kept at in a case of bronchitis?* (p. 114).
2. *What points should be observed in using a bronchitis kettle?* (p. 114).
3. *Mention the chief nursing points in a case of pneumonia* (p. 116).
4. *How is a "pneumonia-jacket" made?* (p. 116).
5. *What precautions should be taken to prevent the spread of consumption?* (pp. 117, 118).
6. *What should be done if a patient coughs up blood?* (p. 120).
7. *What symptoms are sometimes seen before a patient actually coughs up blood?* (p. 120).
8. *What points are to be observed in nursing a case of heart disease?* (p. 120)
9. *What are the chief nursing points in a case of diabetes?* (p. 122).
10. *What sort of bed would you prepare for a case of rheumatic fever?* (p. 124).
11. *How is a fracture-bed prepared?* (p. 126).
12. *How would you prepare a room for an operation?* (p. 127).
13. *What would you do if a patient were sick after an operation?* (p. 129).

CHAPTER IX

PERSONAL HYGIENE

To be happy one should be healthy, and good health can be enjoyed by both rich and poor. With good health one can get enjoyment from all one's surroundings and from the use of all one's faculties. The laws of health are simple and easily carried out. Sanitary legislation deals with conditions which are beyond the powers of individual members of a community; but there are conditions which can *only* be carried out by the individual himself. It is these individual conditions which constitute personal hygiene; the other conditions are provided for by public hygiene.

The rules of personal hygiene, simple though they are, are only too often neglected. The subject is too long to be gone into thoroughly in a work of this kind, and the following few remarks will be confined almost entirely to the personal hygiene of the young.

EXERCISE

Exercise is absolutely necessary if growth is to be satisfactory. For body-growth, physical exercise is required, and for mental-growth, intellectual exercise. Neither must be neglected. A growing child requires about five or six hours' physical exercise and about the

same amount of mental training every day. The physical exercise should not be violent, and there should be frequent intervals for rest. The exercise should be out of doors rather than indoors, should be suited to the age of the child, and should engage the attention so as to exercise the mind as well as the body.

Gymnastic exercises in moderation are good. The chief objection to them is that they are generally carried out in a dust-laden atmosphere.

Boxing is one of the best exercises for boys. Nearly every muscle is brought into play; the mind is exercised, and the boy is trained to keep his temper under conditions which are often trying. Each round should be of short duration only.

Fencing.—Is good for both boys and girls.

Tennis for the young and *golf* for the more elderly are both excellent forms of exercise for the body and mind.

Cycling and walking are excellent when combined with other forms of exercise. By themselves they are insufficient, as the exercise is mainly confined to the muscles of the lower limbs. They have the advantage of getting children out into the open.

Riding is a useful form of physical exercise, but does not combine mental with physical training.

Rowing.—This exercises chiefly the upper part of the body; combined with cycling and walking it exercises all the muscles of the body.

Swimming is one of the very best forms of exercise. All the muscles are brought into play, and there are the

additional advantages of a cold bath and of deep breathing.

Running should be organised, otherwise it may overtax the heart.

Home-gymnastics carried out for about ten minutes night and morning when undressed are excellent, and all should take up this form of exercise.

FOOD

Children require a sufficiency of good, wholesome, plain food. Their chief meals should be breakfast and mid-day dinner. The meals should be punctual and regular, and too many varieties of food should not be indulged in at any one meal. As to quantity, provided the food be plain, the appetite can be trusted as a true guide.

Fat.—Some children object to all forms of meat fat, and their objection should be respected. The necessary amount of fat can be given in other forms, such as cream, suet, salad dressing, nuts, etc.

Sugar.—Children require a fair amount of sugar. This, however, should not take the form of sweets eaten between meals.

MASTICATION

This should be thorough. The more slowly one eats, the less one takes, and the more thorough the mastication, the more easily and quickly is the food digested.

TEETH

The decay of the teeth is, more often than not, the fault of the individual. It is brought about by the lodgment and subsequent decay of particles of food on and between the teeth. Children should be trained from quite early years to clean their teeth at least night and morning. The night cleaning is the more important of the two. Teeth should always be washed after taking medicine.

DRINKING

Drinking should be indulged in *before* or *after* meals, and very little should be taken with the meals. Water is the best beverage for children. Aerated waters rather tempt the child to drink more than he really requires. They are sometimes, therefore, useful in cases of constipation. Weak tea for tea and well-made coffee with half milk for breakfast are suitable for most children. Young people are better without alcohol, but elderly people often require a little to aid their more feeble digestion.

SLEEP

Children require more sleep than adults. A child of four should spend nearly half of the twenty-four hours in sleep. A child of nine requires about ten hours. Between fourteen and twenty years of age about eight to nine hours are necessary. Children should be accustomed from their earliest years to sleep with open windows.

MORNING BATH

A cold bath is one of the greatest aids to health. The temperature of the bath should be about 60° F. to 65° F. summer and winter. Some *few* children do not get a proper healthy reaction after a cold bath ; they should have a tepid bath instead. The head should be washed at least once a week, except in cases of girls with long hair, when once in three weeks will usually have to suffice.

BOWELS

A regular action of the bowels should be obtained every day. Children should be trained to go to the closet at the same hour every day. By so doing they cultivate a good habit which will probably remain with them all their lives. For constipation see p. 92.

FRESH AIR AND SUNSHINE

These are absolute essentials, and children should be trained to shun hot stuffy rooms. Open windows day and night, summer and winter, should be the rule. All children should live out of doors as much as possible. Boys and girls of all classes should be encouraged to become Boy Scouts or Girl Guides; they will thus be only too eager to be out of doors.

SMOKING

Youths should not indulge in smoking. While growing a body is affected much more by smoking than when it is

fully developed. Smoking interferes with the appetite, makes the youth pale, less inclined for active exercise, and often leads to the habit of deception. Smoking is a habit readily acquired and very difficult to throw off. There is no doubt that tobacco affects the action of the heart, and it is very important that this organ should be working at its best during the years of growth when all parts of the body require a generous supply of pure blood.

INCONTINENCE

It is the *duty* of every parent to warn their children against the evils of incontinence.

CLOTHING

Clothing should be warm and light, and should not hamper the movements of the body. Those worn next the skin should be soft and porous and made of some good washing material. Flannel or merino is probably the best. The underclothing should have long sleeves. Pressure on the chest and waist is especially injurious. Suspenders should be used in place of the old-fashioned garters. Boots and shoes should be made to fit the feet and not the feet the boots. High heels should never be allowed. The day underclothing should be spread out and hung up at night so as to be well aired by the morning.

LOCAL REMEDIES AND APPLIANCES

BATHS

Varieties :

Cold	60° F. to 80° F.
Tepid	80° F. to 90° F.
Warm	90° F. to 100° F.
Hot	100° F. to 110° F.
Vapour	100° F. to 110° F.

The temperature of a bath must be taken with a *bath* thermometer, and the degrees of heat read whilst the thermometer is actually in the water. The water should be well stirred before taking the temperature. If no thermometer is available, the naked elbow should be used to test the heat ; the elbow can bear a temperature of about 108° F.

The skin, though suited to withstand the changes of temperature in the air, is prevented from doing so in water, which checks perspiration. A patient must therefore be carefully watched whilst in the bath, and especially when in a "hot" or "cold" one. If he becomes at all faint, he should be removed at once. In cold weather the bath should be given in a warm room, and a warm blanket or bath-towel should be ready to wrap the patient in on leaving the bath.

Exposure to chill must be guarded against both during and after a bath. The patient should be quickly dried

with a warm bath-towel ; in severe cases he should be wrapped in a warm blanket and put straight to bed, and the drying should be done under the blanket when in bed.

In cases with any difficulty in breathing the water should not cover the chest, as this would increase the difficulty. *Cold baths* are best taken in the morning before breakfast, except in delicate health, when they are best taken about one and a half hours after breakfast. Cold baths are not suitable for those who do not get a rapid reaction of a warm glow after leaving the bath.

VAPOUR BATHS

These may be given either in bed or sitting in a chair.

In bed.—The patient is covered with a blanket, and a bed-cradle is put over this so as to have a space between the top bedclothes and the patient. A mackintosh is put over the cradle under the bedclothes. The clothes are now well tucked in on either side and all round the neck. A kettle with a long spout is arranged at the foot of the bed with the spout going in under the clothes at the foot. The kettle is kept boiling with a spirit lamp.

The temperature of the bath should be between 100° F. and 110° F. Duration of bath about twenty minutes.

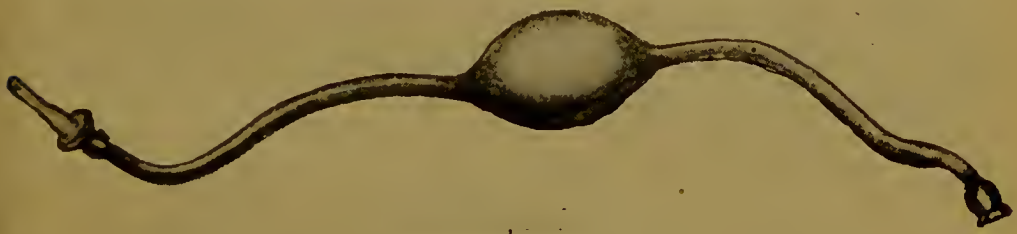
In a chair.—The patient is seated on a cane-bottom chair, and a blanket is arranged all round, leaving the head uncovered. Steam is introduced by means of a kettle as before.

BLISTERS

These are used for "counter-irritation" to relieve pain and inflammation of the deeper structures. They cause an effusion of watery fluid beneath the superficial skin. Blisters are applied in the form of a plaster spread on thick stiff paper and kept in place by means of a bandage for about six hours; or blistering fluid is painted on, and if a blister does not form after about half an hour, the part is covered with a piece of lint soaked in warm water or a fomentation is applied. The doctor will give directions for the dressing of the blister when formed.

ENEMA

Enemata are frequently ordered by a doctor, and every nurse should know how to give them. They are given by means of a "Higginson's syringe," which is a



HIGGINSON'S SYRINGE

long rubber tube with a rubber ball in the middle. At one end of the tube is a bone nozzle and at the other is a metal valve. The solution used is usually water made soapy with yellow curd soap. The temperatuer

of the solution should be between 95° and 100° F. The patient lies on his left side, and a mackintosh is placed under his hips to protect the bed. The bone nozzle is oiled and gently inserted into the lower bowel after the syringe is quite filled with the solution; no air should be left in the syringe. The metal valve end of the syringe is kept in the bowl of solution. The fluid is then *slowly* injected by gently squeezing the rubber ball. About a pint or a pint and a half is generally injected. The nozzle is then removed, and a folded towel is placed against the part. The enema should be retained for about ten minutes. The night-stool or bed-pan must be in readiness. Oil is sometimes given instead of the soapy water. It is administered in the same manner. The syringe must be well cleaned after use.

EYE LOTIONS

These are generally applied warm. A proper eye-bath should be used or a piece of cotton wool is utilised to bathe the eye with the lotion.

EYE DROPS

To apply these the patient should sit in a chair and throw his head well back. The eyelids are then separated with the finger and thumb, and two or three drops are instilled at the *outer* corner of the eye and not at the inner corner near the nose.

FOMENTATIONS

For the application of moisture and warmth, fomentations, poultices, and stupes are used. The old-fashioned poultices, however, are seldom used now, as fomentations are cleaner and much more readily prepared. A piece of coarse flannel four times the size of the surface to be covered is taken and folded into four thicknesses. A towel is laid across an empty basin, and the flannel placed in the centre of the towel. Boiling water is now poured over the flannel. The two ends of the towel are then taken, one in each hand, and twisted in opposite directions until the water is thoroughly squeezed out of the flannel. The flannel is then carried in the towel to the patient, taken out and shaken up, and the heat tested with the back of the hand. It is then applied and covered over with a piece of jaconet, mackintosh, or oiled silk, and the whole covered with cotton wool or dry flannel. "Wringers" can be made by passing a piece of stick through each loop of a jack-towel. A sheet of cotton wool of the required size can be used in place of the coarse flannel. Fomentations require changing every hour or oftener.

BORACIC FOMENTATIONS

Boracic fomentations are made in a similar manner, boracic lint being used in place of the flannel. These are preferable for applying to wounds.

SPONGIO-PILINE

Spongio-piline is a special preparation of soft material covered on one side with waterproof. It may be used in place of flannel for ordinary fomentations, but should not be employed for wounds.

STUPES

Stupes are ordinary fomentations, on the surface of which *turpentine* or *opium* is sprinkled before the fomentations are applied. The quantity of turpentine or opium used will vary with the size of the stupe. About ½ oz. of opium and about two teaspoonfuls of turpentine are the usual quantities. Opium stupes are used to relieve pain and turpentine stupes for counter-irritation.

POULTICES

To make an ordinary *linseed poultice* well, it must be made quickly, and to do this everything must be ready before the actual making commences. First there must be the material on which the poultice is to be spread; this is generally a piece of linen or lint (teased-out tow, flannel, or brown paper may be used). This should be about one inch larger in all directions than the poultice. Place it in front of the fire to warm. Next two basins are required, one large and one small. Lastly there must be a spoon (or knife), *boiling* water, and the meal (*crushed* linseed).

Some boiling water is poured into the small basin, and into this is placed the spoon to warm. The large basin is warmed by having some boiling water poured into it; this water is then thrown away, and a sufficient quantity of fresh boiling water to make the poultice is then poured in. Take the warmed spoon in the right hand and some meal in the left, and let the meal fall rapidly into the water and stir it in with the spoon continuously. Meal is added until the right consistency is obtained.

The mixture is now rapidly spread on the warmed piece of linen, the edges of which are turned over all round the meal. If the poultice has to be carried some distance, it should be placed between two hot plates. The heat of the poultice is tested with the back of the hand and then applied. An external covering of cotton wool is used, and the whole is secured in position with a bandage. The poultice should be about half an inch thick, and should be applied direct to the skin. The two best tests of a well-made poultice are that it can be rolled up on itself and unrolled again without any damage to the surface, and that it can be applied to the skin and removed again without any of the meal sticking to the skin. Poultices should be changed every two or three hours. The new one must be ready before the old one is removed.

MUSTARD POULTICES

Mix the mustard with a *little* cold water, then pour in a sufficient quantity of boiling water, and to this

add linseed meal as for an ordinary linseed poultice. The face of the poultice is usually covered with a thin piece of muslin. Mustard poultices are left on until the skin begins to get red; this generally takes from ten to twenty minutes.

MUSTARD LEAVES

Soak the leaf for a few seconds in cold water, and then apply direct to the skin and secure in position with a bandage. Their action is rapid.

BREAD POULTICE

Pour boiling water on to stale breadcrumbs in a basin, and allow it to stand for a few minutes; then drain the water off, pour on some fresh boiling water, and immediately drain off again. The scalded breadcrumbs are then spread on lint like a linseed poultice. Change every hour. Equal parts of linseed and breadcrumbs make a better poultice.

CHARCOAL POULTICE

An ordinary bread and linseed poultice is made, and to it is added some finely powdered charcoal. A little charcoal is then dusted on the surface. Used for dirty wounds.

INHALATIONS

Used in throat and lung affections. They can be administered in a proper inhaler or the remedy ordered

by the doctor may be added, in the specified proportion, to water at a temperature of 140° F. in a jug and the patient made to inhale the steam.

The patient should breathe naturally whilst inhaling ; he should inhale for about ten minutes at a time, and should not go out for at least half an hour after inhaling.

When inhalations are only to be used once a day, they should be used at night, unless otherwise ordered.

DRY HEAT

Dry heat is applied by means of hot-water bottles or tins, hot bran or sandbags, a brick heated in an oven and covered with warm flannel, or flannel heated in an oven may be used by itself. All bottles, tins, etc., *must* be covered with flannel before being used, to prevent the skin being burnt ; this precaution is especially necessary when the patient is unconscious.

LINIMENTS

These are local applications that are rubbed into or painted on the part. To be used according to the directions given by the doctor.

LEECHES

The official ones are olive green in colour and have no stripes. They are used for withdrawing small quantities of blood to relieve pain and deep-seated inflammation. Select a portion of skin over a bone, and be careful not to apply a leech over a vein. Wash

the skin with clean warm water and dry carefully. If soap is used, it must all be washed off with plain clean water. Seize the *tail* or *big end* of the leech in a cloth, and allow the head or small end to be on the skin in the required region. Release your hold when the leech has fastened on. Or the leech may be put into a wine-glass or test-tube and invert this over the part. A drop of sweetened milk or water applied to the part causes the leech to take hold quickly. Allow the leech to drop off when it has made a full meal (about one to one and a half teaspoonfuls of blood). If it does not relax its hold when it has finished sucking, put a little salt on its body ; never drag it off.

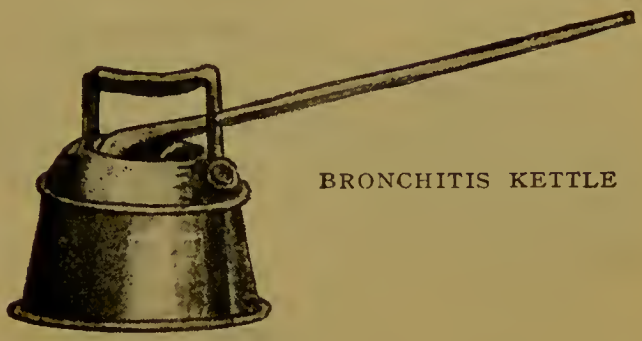
If bleeding has to be encouraged, apply a warm boracic fomentation ; otherwise a small piece of dry boracic lint should be firmly bound on to stop the bleeding. Dry cotton wool will often stop the bleeding when lint fails to do so. If any difficulty is experienced in arresting the flow of blood, the doctor should be summoned.

PLASTERS

The skin should be washed and *thoroughly* dried before the plaster is applied. If there be a piece of muslin covering the sticky side of the plaster, it must be removed. The plaster is then warmed by holding the *sticky* side in front of a fire or the *plain* side against a jug or tin full of hot water. Apply evenly. In removing plasters from wounds, *both* ends should be raised and drawn off towards the wound.

BRONCHITIS KETTLE

The illustration shows a proper kettle, but an ordinary kettle can be made to do by having a tin funnel made to fit over the spout, so as to bring the steam well into the room. The kettle must be *kept* boiling day and night; *boiling* water should be used to fill the kettle when necessary.



BRONCHITIS KETTLE

PADDING SPLINTS

Splints should be carefully and *evenly* covered with teased-out tow or cotton wool, which must overlap all the edges, otherwise pressure sores will be produced. A piece of soft clean linen is then smoothly spread over all and laced down the back with a needle and thick thread.

After use the padding is burnt and the splint well washed and dried.

Splints that are likely to become soiled should have an additional cover of jaconet sewn on.

SANDBAGS

These are often used to steady fractured limbs.

They are made of strong calico filled with fine, well-dried sand. The bags should only be about three-quarters full.

SUPPOSITORIES

Suppositories are cone-shaped preparations of a fatty material containing some drug. They are to be oiled and gently inserted *well into* the lower bowel while the patient lies on his left side with his knees well drawn up.

WET PACKS

These are either hot or cold. Hot ones are used to promote free perspiration and cold ones to reduce the temperature.

COLD PACK

Place a mackintosh sheet over the bed to protect the bedclothes. Over the mackintosh place a blanket. The patient is stripped and lies on his side, covered by a blanket, on one side of the bed.

A sheet wrung out in cold water is rolled up lengthwise to half its width. Place the roll close up to patient's back, and roll him over on to the half unrolled. Unroll the sheet on the other side of patient, and apply the sheet all round him under the blanket. Tuck in blanket. The head of the patient is, of course, left uncovered.

HOT PACK

This is applied in a similar manner. A blanket takes the place of the sheet, and water at a temperature of about 105° F. the place of cold water. Two or three hot-water bottles are placed on each side of the patient, and he is covered with two or three warm dry blankets.

Patients in packs must be carefully watched, and if they become at all exhausted they must be removed from the pack. After a pack the patient should be tepid-sponged, dried, and placed between blankets.

TEPID SPONGING

Often used when the temperature is high and when patients are restless.

Protect the bed with a mackintosh and blanket. Strip patient and cover him with a blanket. Sponge the skin slowly from head to foot, using water at a temperature of about 115° F. A little toilet vinegar may be added to the water with advantage. Sponge and dry one part of the body before passing on to the next. A hot-water bottle should be applied to the feet whilst the sponging is going on.

BED-PANS

These have to be used when the patient is not allowed to leave the bed for purposes of nature. The doctor's orders as to this should be ascertained and strictly carried out.

The pans should be made of earthenware, and may be either round or slipper-shaped. The former are more commonly used for men and the latter for women. They should be warmed before use.

BED-PAN

The round one is passed under the patient from one side. To place the slipper bed-pan in place, the patient must draw up her knees whilst lying on her back; the thin end of the pan can then be slipped under the back.

The pan should be covered up immediately after use, taken from the room, emptied, and well washed with some antiseptic, such as carbolic acid or sanitas. Water should not be put into the pan before use.

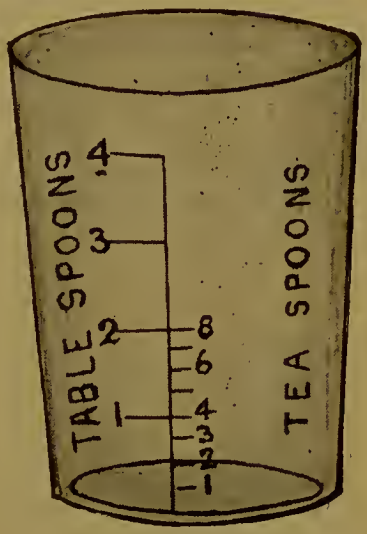
FEEDING-CUP

This is used when a patient is unable to sit up in bed. It consists of a half-covered-in cup, with a spout and either one or two handles. With two handles the patient can be fed readily from either side of the bed. The cup should not be much more than half-filled.

FEEDING-CUP

ADMINISTRATION OF MEDICINES

Medicines must be accurately measured in a proper graduated medicine-glass or by the marks on the bottle. The graduated glasses are of various shapes. The glass should be washed immediately after use, and a separate glass should be used for oily or strong-smelling mixtures.



MEDICINE-GLASS

Medicines must always be kept separate from bottles containing liniments, lotions, etc., to prevent accidental poisoning.

The following rules should be observed when administering medicines.

1. Always read the directions on the label and carry them out.
2. Measure the dose accurately in a measure-glass; spoons vary in size.
3. Keep medicines and bottles containing external applications separate from one another.
4. Shake the bottle before pouring out the mixture.
5. Hold the bottle with the label side upwards, to prevent the directions being soiled.
6. Carefully clean the glass after use, and use a separate glass for oily mixtures.

7. The patient's teeth should be washed after taking medicines, especially after iron.

8. Keep medicine bottles out of sight and reach of the patient and well corked up.

9. Note the effect the medicine has on the patient.

10. Stimulants must be carefully measured, and, as a rule, should be given with food.

11. With four-hourly medicines ask the doctor if he wishes the patient disturbed if asleep at night.

12. Give all medicines at the *exact* time ordered, and not somewhere near the time.

13. When a medicine is stopped, throw away what is left.

Table of Measures

1 minim	= 1 drop, and is written thus . .	ℿj
60 minims	= 1 drachm (1 teaspoonful) . .	℥j
2 drachms	= 1 dessertspoonful . . .	℥ij
4 drachms	= ½ ounce (1 tablespoonful) . .	℥ss
8 drachms	= 1 ounce (2 tablespoonfuls) . .	℥j
2½ ounces	= 1 wineglassful	℥ijss
20 ounces	= 1 pint	Oj

PRACTICAL WORK

Poultice-making. Fomentations. Measuring medicines.

Questions on Chapter IX

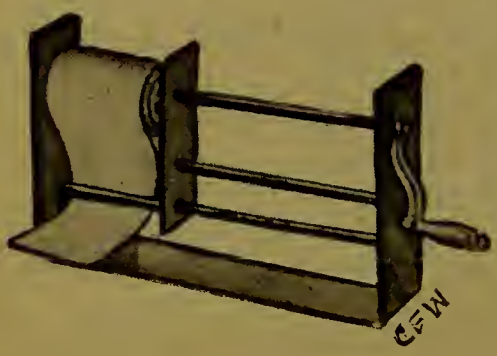
1. *What are the different kinds of baths, and what is the usual temperature of each sort?* (p. 137).

2. *How is the temperature of a bath taken?* (p. 137).
3. *What precautions should be taken in giving a patient a hot bath?* (p. 137).
4. *How is a vapour bath given?* (p. 138).
5. *How is a blister applied?* (p. 139).
6. *How would you give an enema?* (p. 139).
7. *How are eye-drops used?* (p. 140).
8. *How do you make a fomentation, and how is it applied?* (p. 141).
9. *What are stupes?* (p. 142).
10. *How do you make* (1) *a linseed,* (2) *bread, and* (3) *mustard poultice?* (pp. 142–144).
11. *How is a charcoal poultice prepared?* (p. 144).
12. *How is dry heat applied?* (p. 145).
13. *How are leeches applied?* (p. 145).
14. *How should strapping be removed from a wound?* (p. 146).
15. *How should splints be padded?* (p. 147).
16. *How is a sandbag made?* (p. 148).
17. *How are cold and hot packs given?* (p. 148).
18. *How is tepid sponging performed?* (p. 149).
19. *What points are to be observed in administering medicines?* (p. 151).

CHAPTER X

ROLLER BANDAGING

A THOROUGH knowledge of roller bandaging is required of all home-nursing students. Bandages are used for various purposes, such as to give support and rest to a part, for fastening on dressings, splints, etc. A roller bandage is usually made of calico, linen, or flannel. The length is generally about six yards; the width varies from one inch to four inches or more. The most useful widths are two and a half inches for the limbs and head, four inches for the body, and one inch for the fingers. The bandage should be wound into a firm roll either with the hands or by aid of a proper bandage-winder, which can be bought for a small sum.



BANDAGE-WINDER

To be able to bandage neatly and quickly needs much practice, and students should take advantage of the opportunities given them at the end of the lectures. Their mistakes can then be corrected by the lecturer. They should also practise constantly at home. It is important to re-

member that bandaging cannot be learnt by simply watching others doing it; it needs *personal* practice.

Students should make a note of any difficulties they encounter when practising at home, and should ask the lecturer to explain the points at the next lecture. *Students must remember that it is impossible for the lecturer to see all that is going on in the room when the class is large, and that it is therefore necessary for each student to bring his difficulties to the notice of the lecturer.*

GENERAL RULES

1. Select a bandage of the proper width, and see that it is firmly rolled.
2. Stand in front of the part to be bandaged.
3. Place the part in the position it is to remain after the bandage has been applied.
4. Lay the *outside* of the roll against the skin.
5. Fix the bandage with one or two turns round the part, starting on the *inside* and passing round the *front* to the outside.
6. Bandage from below upwards.
7. Bandage with moderate firmness and use equal pressure throughout.
8. See that all your crossings and reverses are in one straight line and rather towards the outer side of the part.
9. See that the lower edge of each turn is parallel to the one before.

10. Each successive turn should overlap about two-thirds of the preceding one.

11. Always *reverse downwards*, keeping the turns parallel to and equidistant from each other.

12. Fasten off the bandage with a safety-pin or by cutting or splitting the end of the bandage into two for a distance of three or four inches and passing the ends round the part in opposite directions and tying them together.

13. To remove a bandage, unwind it, gather the unwound part in the hand as you go along, and pass it round and round the part.

METHODS

1. Spiral.
2. Figure-of-8.
3. Reverse.
4. Spica (really a figure-of-8).

1. Spiral.—The bandage is carried in a spiral manner up the part, each turn overlapping about two-thirds of the preceding one. It is used when the part to be bandaged is of about the same diameter throughout.

2. Figure-of-8.—Used when the part is of irregular size, such as the joints. It is applied by carrying the bandage up from one side obliquely across the front to the other side; then straight round the back and obliquely down from the side it now is, across the front to the other side; straight round the back and obliquely up again, and so on.

3. **Reverse.**—This is used when the diameter of the part changes. It is carried out by holding the lower edge of the last turn firmly with the thumb of one hand, unrolling the bandage for about 2 inches (not more), and holding the roll with the other hand so that the unwound part is *loose*; the bandage is turned *down* on itself and then pulled tight. The bandage is then carried round the back and side to the front again (covering two-thirds of the preceding turn) and once more reversed in a straight line with and rather higher up than the previous reverse.

4. **Spica.**—Used in certain situations, such as the hip, thumb, and shoulder, and is described under these headings.

SPECIAL BANDAGES

HEAD BANDAGE (CAPELLINE)

Two roller bandages, two and a half inches wide, are fastened together. About half of one roll is now wound on to the other, thus making a double-headed roller. The patient should be seated in a chair. Stand behind the patient and place the *outside* of the double rolls on the middle of the forehead *just* above the root of the nose. Carry the rolls backwards along the sides of the head, *above* the ears, to well below the prominent part of the back of the head where the rolls cross one another (the small roll *below* the large one). Now double the small roll forwards over the middle of the

top of the head to the base of the nose. Carry the large roll onwards round the side of the head, just

CAPELLINE BANDAGE. NO. I

above the ear, to the front of the head, and pass it over the small or vertical roll that was brought forward

CAPELLINE BANDAGE. NO. 2

over the top of the head. The vertical (small) roll is now folded backwards over the top of the head again,

this time passing rather to one side of the first turn. The horizontal (large) roll is carried on round the side of the head, and again passes over the vertical roll just below the prominent part of the back of the head. The vertical roll is once more folded forward over the top of the head, passing this time rather to the other side of the *first* turn, and is again curved inwards to the base of the nose, where it is once more crossed by the horizontal roll. Thus the bandage is continued, the vertical roll passing alternately first on one side and then on the other of the top of the head until the whole head is covered in. The bandage is finished off by carrying the horizontal roll once completely round the head and fastening off by pinning. It will be seen that the large horizontal roll simply passes round and round the head to fix each turn of the small vertical roll. When the head is covered in, any remaining portion of the vertical roll is cut off.

The great points to observe in this bandage are that the vertical roll must be brought each time to the root of the nose in front and to the middle line of the head at the back; that the horizontal roll is kept down close to the eyebrows in front and well below the prominent part of the head behind; that the vertical roll is pulled tight each time *before* folding it backwards or forwards, as the case may be.

JAW BANDAGE

Take a 2½-inch bandage about 30 inches long, and split the ends into two up to within about 1 inch of

the middle. Make an inch cut in the middle (*E*). Place the cut (*E*) over the point of the chin, with the length *A B* next to the lower lip. Carry the ends *A B*

JAW BANDAGE

horizontally round to the back of the head and tie in a reef knot. Now carry the ends *C D* vertically up the sides of the face to the top of the head and tie in a reef knot. Finally tie the end *A* to the end *C*, and the end *B* to the end *D*.

FINGER BANDAGE

Take a 1-inch roller bandage. Place the patient's hand extended with the palm downwards. Fix the bandage by passing it once or twice round the wrist, leaving the end loose. Now carry the bandage down across the back of the hand to the outside (thumb side) of the finger to be bandaged, and onwards by wide spirals to the end of the finger or to as near the end as the bandage is required. The bandage is now brought back by a series of close spirals to the root of the finger, and upwards across the back of the hand to the thumb side of the wrist. Carry it round the

wrist. The bandage is now either : (1) tied to the end that was left loose, or (2) brought across the back of the

FINGER BANDAGE

hand again to the root of the next finger if that has to be bandaged as well.

THUMB BANDAGE

Use a 1-inch bandage. Fix the bandage by taking one or two turns round the wrist, leaving the end loose. Carry the bandage obliquely down to between the thumb and index finger and as low down the thumb as required. Now pass it round the thumb to the

opposite side, and then obliquely up across the back of the hand to the opposite side of the wrist. Round the wrist and once more obliquely down to between the

THUMB SPICA

thumb and the forefinger, only at rather a higher level than the first loop. Continue the series of figure-of-8 loops, and finish off by tying the end of the bandage to the loose end left when fixing the bandage.

HAND BANDAGE

Take a 2-inch bandage. Place the outside on the back of the hand, which is held with the palm downwards. Carry the bandage obliquely down to the root of the little finger, across the palm of the hand to the root of the forefinger. Now carry up obliquely across the back of the hand to the opposite side of the wrist, and

round the front of the wrist to the other side. It is then carried round the hand again at a rather higher level than the first turn. A succession of such figure-

HAND BANDAGE

of-8 turns is made until as much of the hand as is required is covered in. Fasten off by pinning or splitting the end and tying.

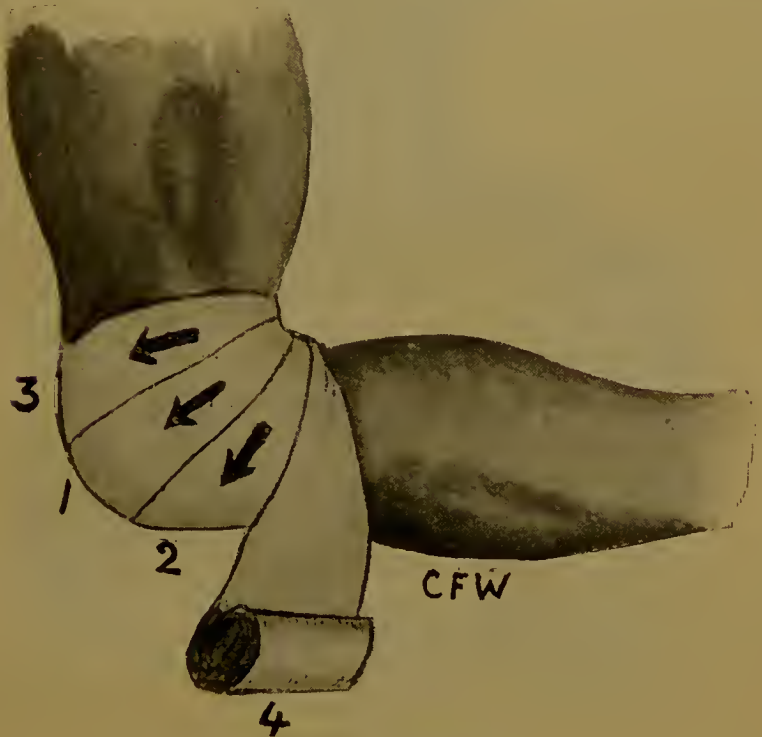
FOREARM BANDAGE

Use a 2½-inch bandage. Fix the end by one or two turns round the wrist (unless the bandage is a continuation of the hand bandage). The forearm is then covered in by a few spiral turns until it begins to in-

crease in diameter, when the bandage is continued by reverses.

ELBOW BANDAGE

Use a $2\frac{1}{2}$-inch bandage. The elbow is bandaged by what is known as "a divergent spica." Place the



ELBOW BANDAGE

outside of the roll against the prominent point of the elbow, and carry the bandage round the side to the bend in front and down the opposite side and round

the prominent part once more and then up to the bend again. Now bring the bandage down *below* the first turn and up to the bend again and then down *above*

SHOULDER SPICA

the first turn, and so on alternately until all has been covered in. Fasten off by pinning or splitting the end and tying.

ARM BANDAGE

The arm is bandaged by using reverses with a $2\frac{1}{2}$ or 3-inch bandage.

SHOULDER SPICA

Use a 3-inch bandage. Place a little pad of absorbent cotton wool in each armpit. Fix the bandage with one or two turns round the arm about five or six inches below the point of the shoulder. Now carry the roll across the patient's back to the opposite armpit, and then across the front of the chest and on to the arm. Encircle the arm at a slightly higher level than the fixing turns, and then pass the bandage round the patient's back as before.

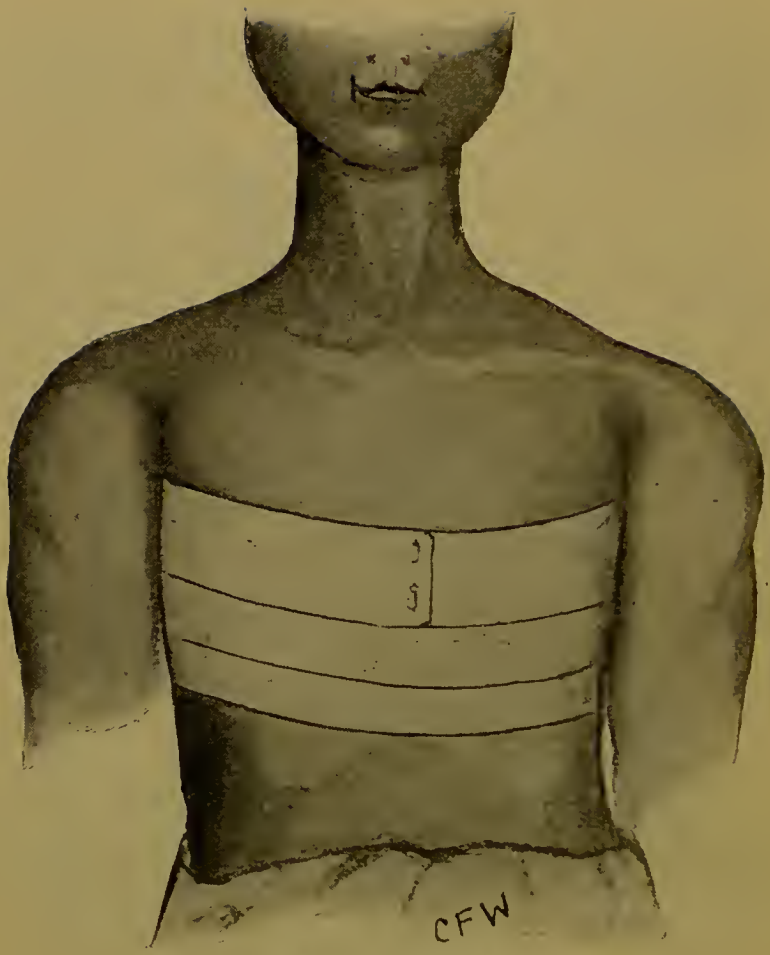
Repeat this until the whole shoulder is covered in, and fasten off by pinning.

CHEST BANDAGE

Use a 4-inch bandage or even a wider one. Carry it round and round the chest and back, so that each turn overlaps about two-thirds of the previous one. Fasten off by pinning.

BREAST BANDAGE

Use a 4-inch bandage. Fix by taking two turns round the chest below the breasts. Continue by carrying the bandage alternately up across the breast



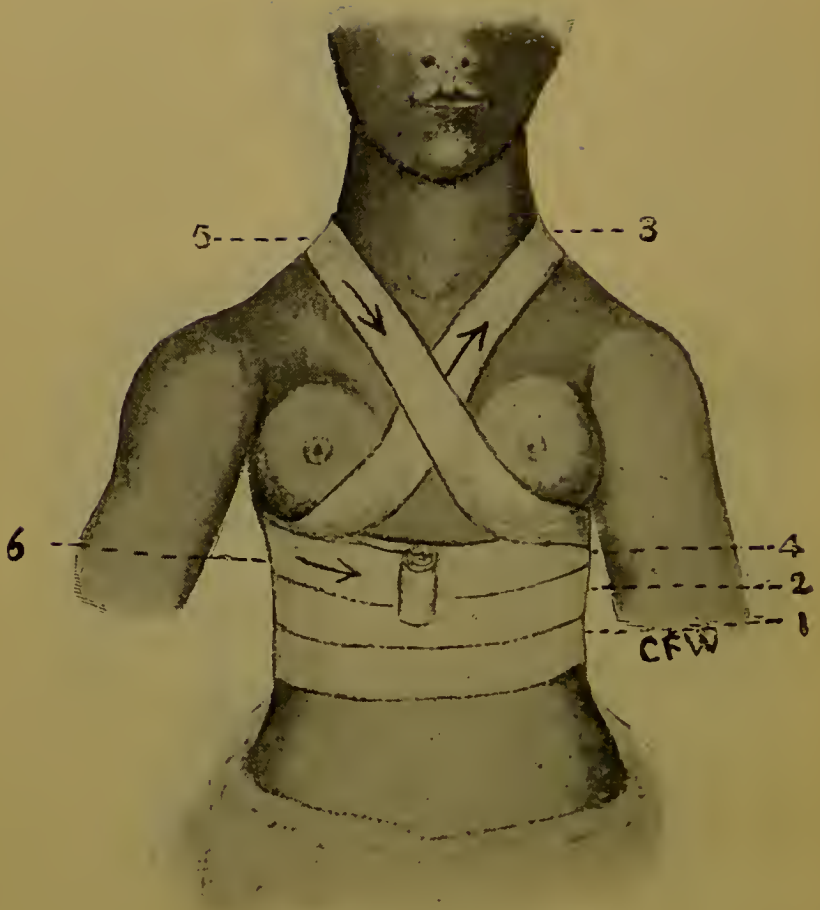
CHEST BANDAGE

(commencing at the lower part of the breast) and up over the opposite shoulder, down obliquely across the back, and then horizontally round the body. Fasten off by pinning when the whole breast is covered in.

BREAST BANDAGE

DOUBLE BREAST BANDAGE

Take a 3½ or 4-inch bandage. Fix by taking one or two turns round the body below the breasts. Carry the bandage up over the lower part of the right breast



DOUBLE BREAST BANDAGE

to the opposite shoulder, obliquely down the back to the right side of the body, and horizontally round to the back and up to the right shoulder ; now carry the

bandage obliquely down the front of the chest, taking in the lower part of the left breast. The bandage is then carried horizontally round the body and up over the right breast to the left shoulder. Continue thus bandaging first one breast and then the other until both are covered in. Fasten off by pinning.

FOOT AND LEG BANDAGE—FIGURE-OF-EIGHT

FOOT BANDAGE

Use a 2½-inch bandage. Fix by placing the outside of the roller against the inner ankle and carrying it obliquely across the instep to the base of the little toe, then under the foot to the ball of the great toe, and up obliquely across the instep to the outer ankle and round the leg just above the heel, and then obliquely down from the inner ankle to the base of the little toe and along, under the foot, to the great toe. The foot is then covered in by a series of reverses.

HEEL BANDAGE

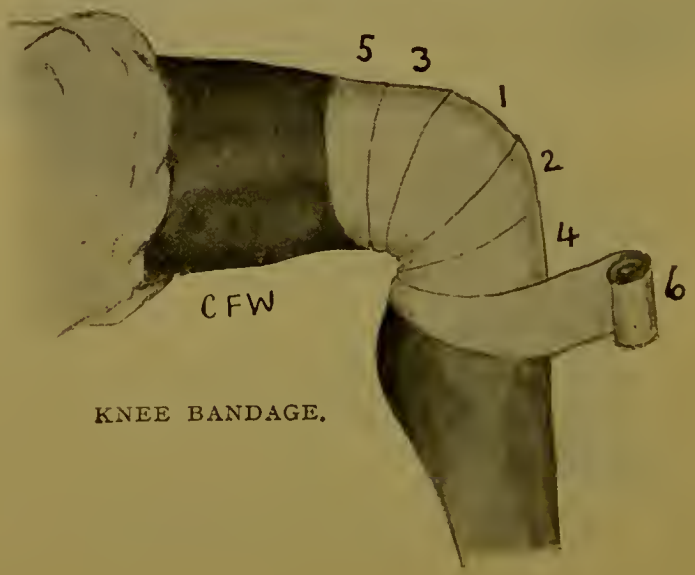
FOOT AND LEG BANDAGE—REVERSES

HEEL BANDAGE

Use a 3-inch bandage. Place the outside of the roll against the inner ankle, and carry it up across the instep and round the outer ankle. Now carry it round over the prominent part of the heel. Take a second similar turn to more securely fix the bandage. The bandage is then carried alternately above and below the heel, taking in the loose edge of the previous turn but one. Continue until the whole heel is covered in. Fasten off by pinning or splitting the end and tying (vide p. 172).

LEG BANDAGE

Use a $2\frac{1}{2}$-inch bandage. If the foot has not been bandaged, fix by taking one or two turns round the leg near the ankle. The first part of the leg is then covered in by spirals, and the remaining portion by reverses.



KNEE BANDAGE.

KNEE BANDAGE

Use a 3-inch bandage. Place the outside of the roll over the knee-cap, carry it twice round the knee, and then alternately above and below the knee. This is a divergent spica similar to that used for the elbow.

HIP BANDAGE

Use a 3-inch bandage. Fix by two or three turns round the thigh. Now carry the bandage obliquely up to the hip, round the back to the opposite hip, and obliquely down to the outside of the thigh. Round the back of the thigh to the inner side, and then obliquely up again to the first hip. Continue thus, with each turn at a slightly higher level, until the hip is covered in. Fasten off by pinning. This bandage is also called a single groin spica.

DOUBLE GROIN SPICA

Use a 3-inch bandage. Fix by carrying the bandage once or twice round the body. Now carry it obliquely down the front of one thigh, round the back of the thigh, and then across the front and obliquely up to the opposite hip; round the patient's back to the other hip, and then obliquely down across the front and to the outer side of the other thigh; round the back of the thigh to the inner side, and then obliquely across

the front up to the hip on the same side. Continue thus, bandaging first one groin and then the other, until both are covered in. Fasten off by pinning.

HIP BANDAGE

DOUBLE GROIN SPICA

STUMP BANDAGE

The patient should be seated either on a chair or the side of the bed or lying on his back in bed. Use

STUMP BANDAGE

a 3-inch bandage. Fix by carrying the bandage once or twice round the limb above the stump. Now hold

the lower border of the bandage firmly with the thumb and fold the bandage downwards over the thumb, across the centre of the stump (1 in illustration) to the under surface; catch it here with the fingers of the free hand, and fold the bandage back over the fingers and across the end of the stump and rather to one side of the first fold. Again catch the bandage with the thumb, and again fold it back across the end of the stump and rather to the opposite side of the first fold on to the under surface, where it is once more caught with the fingers of the free hand. Continue thus until the whole stump is covered in. Now fix the folds, caught by the thumb above and the fingers below, by carrying the bandage once or twice round the limb above the stump. Fasten off by pinning or splitting the end and tying.

Students can practise this bandage by using the clenched hand as a "stump."

EYE BANDAGE

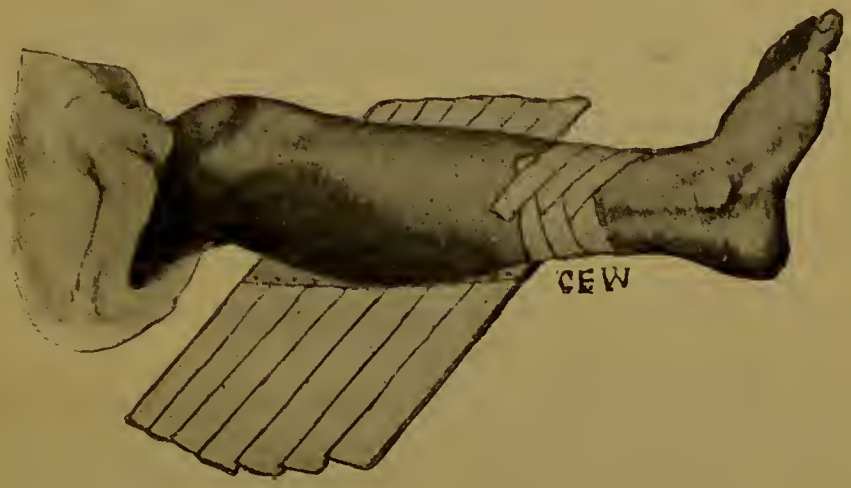
Use a 2½-inch bandage. Fix by carrying it once or twice round the head above the eyes and ears and on to the side of the head opposite to the eye to be bandaged. Now carry it obliquely down across the eye and under the ear on the same side, round the back of the head to just above the opposite ear. Finish off by carrying the bandage once round the head horizontally and pinning.

EYE BANDAGE

MANY-TAILED BANDAGE

A many-tailed bandage is very useful for securing dressings that have frequently to be changed. It is

made by sewing several lengths of a roller bandage, at their centres, to a piece of linen placed at right angles to the lengths of bandage. The lengths of bandage should be sewn on overlapping one another by about one-third of their width. The length of each piece of bandage should be about one and a half times the circumference of the part to be bandaged. It is put on



MANY-TAILED BANDAGE

as shown in the illustration, commencing below and working upwards, the ends of each length crossing each other obliquely.

A many-tailed bandage may be made hurriedly by taking a piece of calico, linen, or flannel wide enough to rather more than cover the part and long enough to go one and a half times round the part, and tearing it into strips from *each* side up to within about two inches

of the middle. The strips of a many-tailed bandage thus made do not overlap one another as they do in a properly made one.

A many-tailed bandage is fastened off by pinning the last two ends applied.

Questions on Chapter X

1. *How is a roller bandage made, and what is the usual length?* (p. 154).
2. *Why should students take advantage of the time given for practical work at the end of each lecture for practising the different bandages?* (p. 154).
3. *What are the general rules for applying a roller bandage?* (p. 155).
4. *What are the different ways in which a roller bandage may be applied?* (p. 156).
5. *What are the three great points to remember in applying the "capelline bandage"?* (p. 160).
6. *How would you make a many-tailed bandage:* (a) *if you had plenty of time,* (b) *if it was wanted in a great hurry?* (p 81).

CHAPTER XI

SICK RECIPES

BEVERAGES

APPLE WATER

TAKE 4 or 5 large dessert apples. Cut into slices and remove the cores. Place in a large jug together with two lumps of sugar. Pour on 2 pints of boiling water. Let it stand to cool, and then strain. Lemon rind can be used for flavouring.

BARLEY WATER

Wash 2 oz. of pearl barley in one or two lots of cold water. Boil the barley now in 1½ pints of fresh water for 15 minutes, and *then throw the water away.* Pour on 2 quarts of fresh water, and boil down to 1½ quarts. Allow to cool, and then strain. Barley water can be flavoured with *thinly cut* lemon rind and sweetened to taste. Unflavoured, it may be used for diluting the milk for an infant.

CURRANT DRINK

Boil 1 tablespoonful of black or red currant jelly in 1 pint of water. Take 1 tablespoonful of cornflour,

mix with a little cold water, and then pour into the boiling fluid and stir well. Should be given cold.

LINSEED TEA

Take 2 or 3 tablespoonfuls of linseed, 1 oz. of sugar, and a small piece of liquorice; place in a jug, and pour on 2 pints of boiling water. Stand in a warm place for 2 hours. Strain when cool.

MILK TEA

Tea made with boiling milk instead of water.

MINERAL WATERS

Iced or not, may be used in nearly all cases.

RICE WATER

Wash 1½ oz. of rice in cold water. Then boil it for 2 hours in 2 pints of water. Strain. The water may be flavoured with any spice the patient likes. Sweeten to taste.

TOAST WATER

Toast a slice of bread so that it is well browned. Put into a jug, and pour on 1 pint of cold water. Let it stand covered up for an hour.

FOODS

BEEF-TEA

Take 1 lb. of lean beef. Remove all fat and gristle, and cut up into small pieces. Place in a jar, and pour on 1 pint of cold water. Let it stand for an hour. Add a little salt, cover up and place the jar in a saucepan of water over a fire. Let it gently simmer for 2 hours (the temperature must not be higher than 160° F.). *Pour off* the liquid, but do not strain. When cold, remove all the congealed fat. Good beef-tea does not form a jelly when cold.

BROTH

1. *Chicken.*—Take half a large fowl, skin, and cut up into small pieces. Place these, together with the bones, a small piece of parsley, mace, and a crust of bread into a stew-pan and cover with 2 pints of water. Boil for 1½ hours, skimming from time to time. Remove and strain.

2. *Mutton.*—Take 2 lb. of the scrag end of the neck of mutton. Cut into large pieces, and remove all fat. Put into a saucepan, and pour on 3 pints of cold water. Add a little salt. Put on the stove to boil. As soon as it boils, remove to one side and let it simmer for 3 hours, skimming frequently. Pour into a basin, and when cold remove all fat. May be thickened with pearl barley or rice.

CAUDLE

Add 1 wineglassful of sherry to a well beaten-up egg, and pour into ½ pint of hot (not boiling) gruel. Stir well. Flavour with nutmeg, and sweeten to taste.

CHICKEN CREAM

Cut up finely the breast of half a chicken, and then pound it well. Heat 1 teacupful of milk, and add the pounded chicken slowly, stirring all the time. Add a little salt and pepper and 1 tablespoonful of cream. Give hot.

EGG FLIP

Beat up the yolks of 3 eggs with ½ oz. of castor sugar. Add gradually 8 tablespoonfuls of equal parts of brandy and water. Flavour with nutmeg.

EGG MILK

Beat up the whites of 3 eggs with 1 teaspoonful of brandy. Take 1 teacupful of milk, and heat (but do not boil) in a saucepan, and add the whites of the eggs, stirring all the time. Give warm.

GRUEL

Take 1 tablespoonful of patent groats, and stir in 2 tablespoonfuls of cold water. Pour the mixture into 1 pint of boiling water, and let it boil for a quarter of

an hour. Stir well with a wooden spoon. A tablespoonful of rum may be added. Sweeten to taste.

HARICOT BEANS

Soak 1 pint of the beans in cold water for 10 to 12 hours. Place in a saucepan with 2 pints of cold water and a little salt. As soon as the water boils, remove the saucepan to one side, and let it gently simmer for about 3 hours. Eat with melted butter and parsley, and with or without meat.

MEAT JUICE (RAW)

Mince ½ lb. of rump-steak. Put into a jug, and add ¼ pint of cold water. Stir together, and let it stand for 1 hour in a cool place. Strain through muslin, and squeeze the juice out by twisting the muslin. Can be taken alone if flavoured with lemon, or may be added to milk or warm (not hot) broth or soup.

Raw meat-juice should be kept in a cool place, and not for more than 12 hours.

OMELETTE

Whip up the yolks of 3 eggs with 3 tablespoonfuls of milk. Add a small piece of butter and a pinch of salt. Keep the sides and bottom free while it is cooking.

WHEY

The following is Dr. Starr's method: "Take ½ pint of fresh milk, heated to about 140° F., and 1½ teaspoonfuls of essence of rennet, and stir just enough to mix. Let the mixture stand in a warm place until firmly congealed. Now beat up the curd until it is finely divided and strain." Whey may be made hurriedly by adding 1 wineglassful of sherry to 1 pint of boiling milk, or by adding 2 teaspoonfuls of lemon juice to the same quantity of boiling milk. The yolk of 1 egg may be beaten up and added to the whey to make it more nourishing.

TEA (OR COFFEE) JELLY

Pour ½ pint of boiling milk on to some tea (or coffee), and add 1 tablespoonful of cream and a little isinglass and sugar. Pour into a shape until cold.

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